

WEST Search History

DATE: Sunday, September 08, 2002

Set Name Query

side by side

Hit Count Set Name

result set

DB=USPT; THES=ASSIGNEE; PLUR=YES; OP=ADJ

L6	l3 or L5	83	L6
L5	roundup\$ same (fatty acid\$1 or pelargonic or nonanoic)	18	L5
L4	rounup\$ same (fatty acid\$1 or pelargonic or nonanoic)	0	L4
L3	l2 not l1	80	L3
L2	(glyphosate\$1 or phosphonomethyl\$) same (fatty acid\$1 or pelargonic or nonanoic)	99	L2
L1	(glyphosate or phosphonomethyl\$).clm. and (fatty acid\$1 or pelargonic or nonanoic).clm.	32	L1

END OF SEARCH HISTORY

Reviewed online

WEST☐ **Generate Collection** **Print**

L6: Entry 66 of 83

File: USPT

Oct 18, 1994

11/93 - FD

DOCUMENT-IDENTIFIER: US 5356861 A

TITLE: Homogenous herbicidal adjuvant blend comprising glyphosate, ammonium sulfate, and alkyl polysaccharide

Detailed Description Text (4):

The glyphosate and X-77.RTM. blend described in Tables 1-A and 1-B refers to a blend of glyphosate and a nonionic surfactant. The nonionic surfactant, X-77.RTM., is a mixture of alkylarylpoloxyethylene, glycols, free fatty acids and isopropanol, manufactured by Valent U.S.A. Corp. of Walnut Creek, Calif.

Detailed Description Text (27):

Testing was performed at the University of Wisconsin at River Falls, Wis. Oats, C. ragweed, C. lambsquarter, P. smartweed, B. nightshade, G. foxtail, and W. buckwheat were seeded in adjacent strips as bioassay species. When the oats reached a height of 6 to 10 inches tall, having five leaf jointing, and other weeds reached a height of 1 to 5 inches tall, herbicidal mixtures were applied to each of four replicate plots per herbicidal mixture. The herbicidal mixtures were applied the morning of Jun. 8, 1993. The application preceded a rain at about 1:00 p.m. A drift control agent was applied in conjunction with a herbicidal mixture at a concentration of 2 ounces per 100 gallons. The rate of application of the glyphosate was 10 ounces per acre. The Preference.RTM. adjuvant refers to a mixture of nonoxynol in a concentration of about 38% to about 80% by volume, acidulated soybean soapstock in a concentration of 10 to 30% by volume, about 5 to 10% for viscosity reducing agent such as isopropanol or n-butynol and about 5 to 10% water. The Preference.RTM. may also acceptably include fatty acid ethoxylate and antifoam in a range of 10 to 20% by volume and 0.2 to 0.5% by volume, respectively. The results show a very good kill rate for the glyphosate in combination with the adjuvant blend of the present invention.

WEST☐ Generate Collection ☐ Print*Nothing new here
Just basic history*

L6: Entry 65 of 83

File: USPT

Feb 14, 1995

DOCUMENT-IDENTIFIER: US 5389598 A

TITLE: Aqueous concentrate formulations having reduced eye irritancy

Caulder et al
Brief Summary Text (16)

U.S. Pat. No. 5,196,044 discloses that fatty acids of carbon chain length from about 7 to about 20 may be used in combination with certain herbicides, including glyphosate based herbicides, to give improved herbicidal performance. Examples are provided wherein nonanoic acid, in the form of an 80% (by weight) formulation called Sharpshooter.RTM. herbicide, was diluted as a spray mix together with the isopropylamine salt of glyphosate, in the form of Roundup.RTM. herbicide. No disclosure is made of an aqueous concentrate formulation comprising a herbicidal active ingredient, an alkoxyated alkylamine surfactant and a saturated or unsaturated fatty acid. No mention is made of eye irritancy properties of any composition disclosed; nor is any guidance given as to how to prepare a storage-stable aqueous concentrate formulation comprising both glyphosate and saturated or unsaturated fatty acid. The spray mixes disclosed contain a sufficient quantity of the fatty acid to provide enhanced weed control performance by comparison with the herbicide alone. For example, the weight/weight ratios of nonanoic acid to glyphosate (expressed as acid equivalent) in disclosed spray mixes ranged from 1:3 to 62:1.

Brief Summary Text (17):

PCT application WO 92/07467 discloses dilute aqueous compositions comprising glyphosate or derivatives or salts thereof together with a fatty acid or fatty acid salt, which are said to provide herbicidal activity at rates lower than those of either component alone required to provide comparable activity. The fatty acid or fatty acid salt component is present in the range from 0.1% to 3.0% by weight of the composition while the glyphosate component is present at 0.08% to 2.0% by weight of the composition. Again, no mention is made of eye irritancy properties of any composition disclosed; nor is any guidance given as to how to prepare a storage-stable aqueous concentrate formulation comprising both glyphosate and fatty acid. All data provided relate to dilute mixtures of Roundup.RTM. herbicide with fatty acid salts as opposed to fatty acids, with the exception of data provided in Table 4 of the cited application. This Table 4 presents data on various dilute mixtures of Roundup herbicide with a 1:1 formulation of soybean and coconut fatty acids. These mixtures, when compared with Roundup herbicide alone, are shown to provide slightly superior herbicidal efficacy on two weed species and inferior herbicidal efficacy on a third weed species.

Does not exist as a separate publication

Brief Summary Text (18):

European patent application 0 566 648 discloses aqueous formulations comprising a salt of glyphosate and at least one fatty acid or salt thereof, wherein the fatty acid or salt thereof is present in an amount sufficient to provide herbicidal activity in its own right, in the form of early contact injury symptoms. An appropriate pH range is disclosed (about 6.4 to about 7.8, preferably about 6.8 to about 7.0) wherein said formulations are said to show improved storage stability while maintaining the desired herbicidal efficacy. Among surfactants disclosed as optional components of said formulations is an ethoxylated tallowamine surfactant having about 15 to about 18 moles of ethylene oxide per mole of tallowamine. Once again, no mention is made of eye irritancy properties of any composition disclosed. No hint is present that any advantage might be apparent at fatty acid concentrations far below those providing contact injury symptoms, or at pH levels more typical of commercial aqueous concentrate formulations of glyphosate, such as in the range from

about 4.0 to about 6.0.

Brief Summary Text (20):

This invention comprises new and useful storage-stable aqueous concentrate compositions of pesticides or plant growth modifying agents, in particular the herbicide N-phosphonomethylglycine (glyphosate) or its salts or mixtures thereof, having unexpectedly low irritancy to eyes. Compositions of the invention contain, in addition to one or more active ingredients and water, an alkoxyated alkylamine surfactant represented generically by the structural formula ##STR2## wherein R.sub.1 is C.sub.18-22 alkyl, R.sub.2 groups are C.sub.2-4 alkylene groups or a mixture of such groups and m and n are numbers such that m+n has an average value in the range from about 2 to about 50, said alkoxyated alkylamine surfactant being present in sufficient amount to insure a high degree of pesticidal or plant growth modifying efficacy. At such levels in a concentrate formulation, an alkoxyated alkylamine surfactant of chemical structure represented above normally imparts to the formulation an undesirable degree of irritancy to eyes. In compositions of the invention, irritancy to eyes resulting from the presence of said alkoxyated alkylamine surfactant is significantly reduced or eliminated by the presence in the formulation of a C.sub.6-22 alkyl monocarboxylic or dicarboxylic acid or mixture of such acids. Surprisingly, the amount of said monocarboxylic or dicarboxylic acid(s) required in the formulation to provide useful eye irritancy reduction is much lower than amounts of fatty acids previously disclosed to give other benefits, such as herbicidal performance enhancement. Compositions of the present invention comprise alkoxyated alkylamine surfactant and monocarboxylic or dicarboxylic acid(s) in a weight/weight ratio ranging from about 2:1 to about 20:1. Glyphosate formulations of the invention comprise glyphosate (on an acid equivalent basis) and monocarboxylic or dicarboxylic acid(s) in a weight/weight ratio ranging from about 5:1 to about 100:1. No adverse effect on pesticidal or plant growth modifying performance is produced by inclusion of monocarboxylic or dicarboxylic acid(s) at such levels in formulations of the invention. Glyphosate formulations of the invention have commercially acceptable storage stability at pH levels typical of aqueous concentrate formulations of glyphosate, such as in the range from about 4.0 to about 6.0.

Detailed Description Text (15):

Glyphosate formulations of the invention comprise glyphosate (on an acid equivalent basis) and monocarboxylic or dicarboxylic acid(s) in a weight/weight ratio ranging from about 10:1 to about 100:1, preferably from about 10:1 to about 40:1. An example with a glyphosate/octanoic acid ratio of about 8:1 was found not to give useful improvement in eye irritancy. It appears that it is possible to have too much, as well as too little, of the monocarboxylic or dicarboxylic acid to give the desired effect. In addition, at very low glyphosate/fatty acid ratios, there may be sufficient fatty acid present to have a direct phytotoxic effect, with the attendant danger of antagonizing the long-term herbicidal efficacy of the glyphosate component.

FILE 'REGISTRY' ENTERED AT 15:24:51 ON 28 NOV 2003

L1 1 S PELARGONIC ACID/CN
L2 1 S CAPRIC ACID/CN
L3 1 S LAURIC ACID/CN
L4 1 S GLYPHOSATE/CN

→ SEC also
L20 → caprylic

FILE 'CAPLUS, WPIDS, CABA, CROPB, CROPU, USPATFULL, PCTFULL' ENTERED AT 15:27:01 ON 28 NOV 2003

FILE 'REGISTRY' ENTERED AT 15:27:47 ON 28 NOV 2003

SET SMARTSELECT ON
L5 SEL L1 1- CHEM : 16 TERMS
SET SMARTSELECT OFF

FILE 'CAPLUS, WPIDS, CABA, CROPB, CROPU, USPATFULL, PCTFULL' ENTERED AT 15:27:47 ON 28 NOV 2003

L6 7565 S L5/BI

FILE 'REGISTRY' ENTERED AT 15:28:50 ON 28 NOV 2003

SET SMARTSELECT ON
L7 SEL L2 1- CHEM : 19 TERMS
SET SMARTSELECT OFF

FILE 'CAPLUS, WPIDS, CABA, CROPB, CROPU, USPATFULL, PCTFULL' ENTERED AT 15:28:51 ON 28 NOV 2003

L8 18501 S L7/BI

FILE 'REGISTRY' ENTERED AT 15:29:42 ON 28 NOV 2003

SET SMARTSELECT ON
L9 SEL L3 1- CHEM : 28 TERMS
SET SMARTSELECT OFF

FILE 'CAPLUS, WPIDS, CABA, CROPB, CROPU, USPATFULL, PCTFULL' ENTERED AT 15:29:43 ON 28 NOV 2003

L10 27755 S L9/BI

FILE 'REGISTRY' ENTERED AT 15:30:39 ON 28 NOV 2003

SET SMARTSELECT ON
L11 SEL L4 1- CHEM : 30 TERMS
SET SMARTSELECT OFF

FILE 'CAPLUS, WPIDS, CABA, CROPB, CROPU, USPATFULL, PCTFULL' ENTERED AT 15:30:40 ON 28 NOV 2003

L12 257946 S L11/BI

FILE 'REGISTRY' ENTERED AT 15:31:05 ON 28 NOV 2003

L13 1 S ROUNDUP/CN

FILE 'CAPLUS, WPIDS, CABA, CROPB, CROPU, USPATFULL, PCTFULL' ENTERED AT 15:31:40 ON 28 NOV 2003

FILE 'REGISTRY' ENTERED AT 15:32:01 ON 28 NOV 2003

SET SMARTSELECT ON
L14 SEL L13 1- CHEM : 27 TERMS
SET SMARTSELECT OFF

FILE 'CAPLUS, WPIDS, CABA, CROPB, CROPU, USPATFULL, PCTFULL' ENTERED AT 15:32:02 ON 28 NOV 2003

L15 107005 S L14/BI
L16 2494 S (L6 OR NONANOATE# OR PELARGONATE#) AND (L8 OR DECANOATE# OR
L17 348850 S L12 OR L15 OR (PHOSPHONOMETHYL GLYCINE#) OR (PHOSPHONOMETHYLGL
L18 52 S L17 AND L16
L19 49 DUP REM L18 (3 DUPLICATES REMOVED)

↑ Many false hits due to "Accord" and "Ron", which are alt. term roots for Glyphosate/Roundup
All Reviewed online. Relevant hits printed out. Looks like no prior art.
Tough to find prior art due to the early eff. f. date of my case

=> d que 118; d que 119

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L1      1 SEA FILE=REGISTRY PELARGONIC ACID/CN
L2      1 SEA FILE=REGISTRY CAPRIC ACID/CN
L3      1 SEA FILE=REGISTRY LAURIC ACID/CN
L4      1 SEA FILE=REGISTRY GLYPHOSATE/CN
L5      SEL L1 1- CHEM :      16 TERMS
L6      7565 SEA L5/BI
L7      SEL L2 1- CHEM :      19 TERMS
L8      18501 SEA L7/BI
L9      SEL L3 1- CHEM :      28 TERMS
L10     27755 SEA L9/BI
L11     SEL L4 1- CHEM :      30 TERMS
L12     257946 SEA L11/BI
L13      1 SEA FILE=REGISTRY ROUNDUP/CN
L14     SEL L13 1- CHEM :      27 TERMS
L15     107005 SEA L14/BI
L16     2494 SEA (L6 OR NONANOATE# OR PELARGONATE#) AND (L8 OR DECANOATE#
OR CAPROATE#) AND (L10 OR LAURATE# OR DODECANOATE#)
L17     348850 SEA L12 OR L15 OR (PHOSPHONOMETHYL GLYCINE#) OR (PHOSPHONOMETHY
LGLYCINE#)
L18     52 SEA L17 AND L16
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L1      1 SEA FILE=REGISTRY PELARGONIC ACID/CN
L2      1 SEA FILE=REGISTRY CAPRIC ACID/CN
L3      1 SEA FILE=REGISTRY LAURIC ACID/CN
L4      1 SEA FILE=REGISTRY GLYPHOSATE/CN
L5      SEL L1 1- CHEM :      16 TERMS
L6      7565 SEA L5/BI
L7      SEL L2 1- CHEM :      19 TERMS
L8      18501 SEA L7/BI
L9      SEL L3 1- CHEM :      28 TERMS
L10     27755 SEA L9/BI
L11     SEL L4 1- CHEM :      30 TERMS
L12     257946 SEA L11/BI
L13      1 SEA FILE=REGISTRY ROUNDUP/CN
L14     SEL L13 1- CHEM :      27 TERMS
L15     107005 SEA L14/BI
L16     2494 SEA (L6 OR NONANOATE# OR PELARGONATE#) AND (L8 OR DECANOATE#
OR CAPROATE#) AND (L10 OR LAURATE# OR DODECANOATE#)
L17     348850 SEA L12 OR L15 OR (PHOSPHONOMETHYL GLYCINE#) OR (PHOSPHONOMETHY
LGLYCINE#)
L18     52 SEA L17 AND L16
L19     49 DUP REM L18 (3 DUPLICATES REMOVED)
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=> d his 120-

(FILE 'CAPLUS, WPIDS, CABA, CROPB, CROPU, USPATFULL, PCTFULL' ENTERED AT 15:32:02 ON 28 NOV 2003)

FILE 'STNGUIDE' ENTERED AT 15:38:35 ON 28 NOV 2003

FILE 'REGISTRY' ENTERED AT 16:21:37 ON 28 NOV 2003

L20 1 S CAPRYLIC ACID/CN

FILE 'CAPLUS, WPIDS, CABA, CROPB, CROPU, USPATFULL, PCTFULL' ENTERED AT 16:22:11 ON 28 NOV 2003

FILE 'REGISTRY' ENTERED AT 16:22:46 ON 28 NOV 2003

SET SMARTSELECT ON

L21 SEL L20 1- CHEM : 18 TERMS

SET SMARTSELECT OFF

FILE 'CAPLUS, WPIDS, CABA, CROPB, CROPU, USPATFULL, PCTFULL' ENTERED AT 16:22:51 ON 28 NOV 2003

L22 21903 S L21/BI

L23 3283 S (L6 OR NONANOATE#) AND (L8 OR DECANOATE#) AND (L22 OR OCTAN

L24 48 S L23 AND L17

L25 30 S L24 NOT L18

L26 29 DUP REM L25 (1 DUPLICATE REMOVED)

=> d que

L1 1 SEA FILE=REGISTRY PELARGONIC ACID/CN

L2 1 SEA FILE=REGISTRY CAPRIC ACID/CN

L3 1 SEA FILE=REGISTRY LAURIC ACID/CN

L4 1 SEA FILE=REGISTRY GLYPHOSATE/CN

L5 SEL L1 1- CHEM : 16 TERMS

L6 7565 SEA L5/BI

L7 SEL L2 1- CHEM : 19 TERMS

L8 18501 SEA L7/BI

L9 SEL L3 1- CHEM : 28 TERMS

L10 27755 SEA L9/BI

L11 SEL L4 1- CHEM : 30 TERMS

L12 257946 SEA L11/BI

L13 1 SEA FILE=REGISTRY ROUNDUP/CN

L14 SEL L13 1- CHEM : 27 TERMS

L15 107005 SEA L14/BI

L16 2494 SEA (L6 OR NONANOATE# OR PELARGONATE#) AND (L8 OR DECANOATE# OR CAPROATE#) AND (L10 OR LAURATE# OR DODECANOATE#)

L17 348850 SEA L12 OR L15 OR (PHOSPHONOMETHYL GLYCINE#) OR (PHOSPHONOMETHY LGLYCINE#)

L18 52 SEA L17 AND L16

L20 1 SEA FILE=REGISTRY CAPRYLIC ACID/CN

L21 SEL L20 1- CHEM : 18 TERMS

L22 21903 SEA L21/BI

L23 3283 SEA (L6 OR NONANOATE#) AND (L8 OR DECANOATE#) AND (L22 OR OCTANOATE#)

L24 48 SEA L23 AND L17

L25 30 SEA L24 NOT L18

L26 29 DUP REM L25 (1 DUPLICATE REMOVED)

→ All Reviewed. many false hits due to "Accord"; ^{which is} an alternative term for glyphosate
only relevant hits printed out.

L19 ANSWER 6 OF 49 USPATFULL on STN
 AN 2003:246756 USPATFULL
 TI Water dispersible granules
 IN Nishi, Shugo, Minoo, JAPAN
 Iuchi, Seiji, Nishinomiya, JAPAN
 PA Sumitomo Chemical Company, Limited, Osaka, JAPAN (non-U.S. corporation)
 PI US 6620421 B1 20030916
 AI US 2000-676485 20001002 (9)
 PRAI JP 1999-283995 19991005
 DT Utility
 FS GRANTED
 EXNAM Primary Examiner: Levy, Neil S.
 LREP Sughrue Mion, PLLC
 CLMN Number of Claims: 8
 ECL Exemplary Claim: 1
 DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
 LN.CNT 768
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.
 AB This invention relates to a water dispersible granule comprising;

- (1) a pesticidally active ingredient
- (2) a copolymer of maleic anhydride and diisobutylene or a salt thereof
- (3) a compound selected from the group consisting of a polyoxyethylene alkyl phenyl ether Sulfuric acid ester, a polyoxyethylene aryl phenyl ether sulfuric acid ester, a polyoxyethylene alkyl phenyl ether phosphoric acid ester, and a polyoxyethylene aryl phenyl ether phosphoric acid ester, or a salt thereof
- (4) a water soluble carrier selected from the group consisting of water soluble polymers, succharides, and reduction products thereof sulfates, carbonates, phosphates, condensed phosphoric acids and salts thereof, solid organic acids, solid organic acid salts, protein, amino acids and a urea, and
- (5) a water swellable material,

The present composition is excellent in disintegration in water and storage stability, and after the storage for a long time, it keeps excellent property as water dispersible granules such as disintegration in water.

SUMM **N-phosphonomethylglycine**, agriculturally acceptable
 salt thereof, 4-hydroxymethylphosphinoyl-L-homoalanyl-L-alanine
 SUMM . . . hexyl acetate, benzyl acetate, phenylethylacetate, benzyl
 benzoate, methyl benzoate, isobutyl oleate, benzyl salicylate,
 butylcyclohexyl acetate, methylbenzyl acetate, methyl oleate, methyl
laurate and alkylenedicarboxylic acid mono- or di-esters (ex. a
 mixture of dibasic acid ester having 2 to 4 ethylene groups, diisodecyl.
 . . .
 SUMM Typical examples of the hydrophobic/water-repellent materials are solids
 materials including fatty acid having 10 or more carbon atoms such as
capric acid, lauric acid, stearic acid and oleic acid;
 metal salts of fatty acid such as calcium stearate, magnesium stearate,
 sodium stearate, . . . Ltd.); and liquid materials including fatty
 acids having 6 to 9 carbon atoms such as caproic acid, caprylic acid and
pelargonic acid; higher alcohol such as oleyl alcohol
 and stearyl alcohol; liquid paraffin; naphthene; and silicone oil and
 derivatives thereof.

L19 ANSWER 11 OF 49 USPATFULL on STN
 AN 2002:32619 USPATFULL
 TI Solid pesticidal formulation
 IN Nishi, Shugo, Osaka, JAPAN
 PI US 2002019441 A1 20020214
 US 6596292 B2 20030722
 AI US 2001-818514 A1 20010328 (9)
 PRAI JP 2000-187472 20000622
 DT Utility
 FS APPLICATION
 LREP SUGHRUE, MION, ZINN,, MACPEAK & SEAS, 2100 Pennsylvania Avenue, N.W.,
 Washington, DC, 20037
 CLMN Number of Claims: 15
 ECL Exemplary Claim: 1
 DRWN No Drawings
 LN.CNT 779
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.
 AB A solid pesticidal formulation which comprises (a) 0.1 to 75% by weight
 of a pesticidal active ingredient, (b) 0.3 to 40% by weight of a
 dispersant, (c) 0.3 to 20% by weight of a wetting agent, (d) 0.1 to 30%
 by weight of a boron compound selected from the group of boron oxide,
 boric acid and borate, (e) 0.1 to 95% by weight of a water-soluble
 carrier and (f) 0.1 to 30% by weight of smectite that is excellent in
 preservation stability and can prevent aggregation of formulation,
 reducing of fluidity, and reducing dispersibility when dilution with
 water is applied.
 SUMM [0010] Amino acid compounds such as N-(**phosphonomethyl**)
glycine, agriculturally acceptable salt thereof,
 4-hydroxymethylphosphinoyl-L-homoalanyl-L-alanine and so on;
 SUMM . . . acetate, benzyl acetate, phenylethyl acetate, benzyl benzoate,
 methyl benzoate, isobutyl oleate, benzyl salicylate, butylcyclohexyl
 acetate, methybenzyl acetate, methyl oleate, methyl **laurate**,
 mono- or diesters of dicarboxylic acid including diisodecyl phthalate,
 dioctyl phthalate, diisodecyl adipate, diisobutyl adipate and isobutyl
 adipate; alcohols such. . . and stearyl alcohol; fatty acids, usually
 having carbon number of 6 to 9, such as caproic acid, caprylic acid and
pelargonic acid; and silicone oil and derivatives
 thereof. Examples of the animal oil and vegetable oil include rapeseed
 oil, soybean oil and. . .
 SUMM . . . Typical examples of the hydrophobic substance or water
 repellent include fatty acids having 10 or more carbon number such as
capric acid, lauric acid, stearic acid and oleic acid;
 metal salts of fatty acid such as calcium stearate, magnesium stearate,
 sodium stearate,. . .

L19 ANSWER 20 OF 49 CROPU COPYRIGHT 2003 THOMSON DERWENT on STN
 AN 2001-86639 CROPU H G
 TI Enhancing the herbicidal activity of aliphatic monocarboxylic acid herbicides, useful as e.g. desiccants and defoliants, comprises adding a succinic acid compound.
 IN Coleman R
 PA Applied-Carbochem.; Summerdale
 LO Alto; Okemos, Mich., USA
 PI US 6218336 B1 20010417
 AI US 1999-427476 19991026
 DT Patent
 LA English
 OS WPI: 2001-366134
 FA AB; LA; CT
 AB A method for enhancing activity of an aliphatic monocarboxylic acid herbicide, by adding a compound selected from succinic acid, dimethyl succinic acid, calcium, magnesium, diammonium or ammonium succinate or other Krebs cycle acids is described. Preparations include 0.1-30% (preferably 1-8%) herbicide, at a herbicide:additive ratio of 1:10 to 20:1 (preferably 1:1 to 5:1). Herbicidal and desiccant activity of Scythe (**pelargonic acid**), Liberty (glufosinate ammonium), caprylic and/or capric acids, **Roundup Ultra** (**glyphosate**), hexanoic, oleic and/or butyric acids alone or + succinic acid, diammonium, potassium, calcium or disodium succinate, sodium, methyl or potassium salicylate, ammonium tartrate, unipine, beta-alanine, sorbic, citric, malic, acetic, lactic and tartaric acids, unipine and/or beta-alanine was described.
 AB. . . 1-8%) herbicide, at a herbicide:additive ratio of 1:10 to 20:1 (preferably 1:1 to 5:1). Herbicidal and desiccant activity of Scythe (**pelargonic acid**), Liberty (glufosinate ammonium), caprylic and/or capric acids, **Roundup Ultra** (**glyphosate**), hexanoic, oleic and/or butyric acids alone or + succinic acid, diammonium, potassium, calcium or disodium succinate, sodium, methyl or potassium. . .
 ABEX In the trials described, **pelargonic acid** or caprylic/capric acids + succinic acid, with or without sodium salicylate, had greater desiccant activity on Snowden, Russet Burbank and. . . synergistic with sodium salicylate and caprylic acid. In field and pot tests, herbicidal activity of caprylic acid, Scythe, Liberty and **Roundup Ultra**, hexanoic, oleic, acetic, lauric, caproic, butyric, valeric, heptanoic, tartaric, citric, malic or lactic acids, alone or combined with sodium salicylate,. . . sudanense, Agrostis gigantea, Cirsium arvense and Taraxacum officinale in snapbeans, potato, Kentucky bluegrass, tomato, ornamentals, wheat and cotton. Synergism between caprylic/**capric acid** and succinic acid was also determined in NuCotn 33b cotton and Snowden potatoes. Storage stability of caprylic/capric or pelargonic acids. . .
 CT. . . APPL. TECHNIQUE *FT; STABILITY *FT; USA *FT; AREA-AMERICA *FT; SUCCINATE *TR; SUCCINATE *IN; SUCCINATE *RN; PLANT-GROWTH-INDUCTORS *FT; TR *FT; IN *FT; **PELARGONATE** *TR; **PELARGONATE** *IN; SCYTHE *TR; SCYTHE *IN; PELARGONA *RN; INSECT-ATTRACTANTS *FT; TRAIL-PHEROMONES *FT; ACETATE *TR; ACETATE *IN; ACETATE *RN; ADIPATE *TR; ADIPATE. . . ADIPATE *RN; BETA-ALANINE *TR; BETA-ALANINE *IN; BETAALANI *RN; BUTYRATE *TR; BUTYRATE *IN; BUTYRATE *RN; CAPRATE *TR; CAPRATE *IN; CAPRATE *RN; **CAPROATE** *TR; **CAPROATE** *IN; **CAPROATE** *RN; SEX-PHEROMONES *FT; CAPRYLATE *TR; CAPRYLATE *IN; CAPRYLATE *RN; CITRATE *TR; CITRATE *IN; CITRATE *RN; ENDOTHAL MONODIMETHYLALKYLAMINE *TR; ENDOTHAL MONODIMETHYLALKYLAMINE *IN; DESICCATE-II *TR; **DESICCATE-II** *IN; DIMETHYL-SUCCINATE *TR; DIMETHYL-SUCCINATE *IN; DIMESUCCI *RN; NEMATICIDES *FT; ENANTHATE *TR; ENANTHATE *IN; ENANTHATE *RN; TARTRATE *TR; TARTRATE *IN; TARTRATE. . .

L19 ANSWER 37 OF 49 CAPLUS COPYRIGHT 2003 ACS on STN
 AN 1994:156716 CAPLUS
 DN 120:156716
 TI **Glyphosate** compositions with enhanced activity.
 IN Khan, Shuaib Ahmad; Bonnet, Marc Rene Edouard
 PA Monsanto Europe S.A., Belg.
 SO Eur. Pat. Appl., 14 pp.
 CODEN: EPXXDW

DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 577914	A1	19940112	EP 1992-870100	19920708
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, MC, NL, PT, SE				
PRAI	EP 1992-870100		19920708		
AB	An improved compn. comprises glyphosate , a surfactant component, in the wt. ratio of glyphosate to surfactant of from 1:5 to 10:5, and a C8-14 monocarboxylic fatty acid or its salt, in the wt. ratio of glyphosate to fatty acid of 30:1 to 10:1. A formulation comprised glyphosate isopropylamine salt 41.0, Tween-20 15.5, octanoic acid 2, dipropylene glycol 3, and water 38.5 parts.				
TI	Glyphosate compositions with enhanced activity.				
AB	An improved compn. comprises glyphosate , a surfactant component, in the wt. ratio of glyphosate to surfactant of from 1:5 to 10:5, and a C8-14 monocarboxylic fatty acid or its salt, in the wt. ratio of glyphosate to fatty acid of 30:1 to 10:1. A formulation comprised glyphosate isopropylamine salt 41.0, Tween-20 15.5, octanoic acid 2, dipropylene glycol 3, and water 38.5 parts.				
ST	glyphosate herbicide formulation fatty acid				
IT	Agrochemical formulations (of glyphosate , with fatty acids., for improved herbicidal activity)				
IT	Fatty acids, uses RL: USES (Uses) (C8-14, glyphosate formulation contg., for improved herbicidal activity)				
IT	Fatty acids, compounds RL: USES (Uses) (C8-14, salts, glyphosate formulation contg., for improved herbicidal activity)				
IT	1071-83-6, Glyphosate 34494-03-6 38641-94-0, Glyphosate isopropylamine salt 81591-81-3 153365-04-9 RL: PROC (Process) (formulation of, with fatty acids, for improved herbicidal activity)				
IT	112-05-0, Nonanoic acid 124-07-2, Octanoic acid , uses 143-07-7, Lauric acid , uses 334-48-5, Decanoic acid 544-63-8, Myristic acid , uses RL: BIOL (Biological study) (glyphosate formulation contg., for improved herbicidal activity)				

L19 ANSWER 41 OF 49 CAPLUS COPYRIGHT 2003 ACS on STN
 AN 1994:2737 CAPLUS
 DN 120:2737
 TI Improved early symptom development with a ready-to-use **glyphosate** formulation by addition of fatty acid
 AU Arnold, Kristin A.; Wideman, Al S.; White, Randy J.; Bugg, M. Wayne; Cline, Molly N.
 CS Agric. Group, Monsanto Co., St. Louis, MO, 63167, USA
 SO Pesticide Science (1993), 38(2-3), 270-1
 CODEN: PSSCBG; ISSN: 0031-613X
 DT Journal
 LA English
 AB In expts. with Cynodon dactylon, poison ivy (Rhus radicans), and kudzu (Pueraria lobata), a **glyphosate** formulation with nonanoic acid performed better in terms of early symptom development than a **glyphosate** ready-to-use formulation without fatty acid, and was generally comparable with a com. **glyphosate**/acifluorfen ready-to-use formulation.
 TI Improved early symptom development with a ready-to-use **glyphosate** formulation by addition of fatty acid
 AB In expts. with Cynodon dactylon, poison ivy (Rhus radicans), and kudzu (Pueraria lobata), a **glyphosate** formulation with nonanoic acid performed better in terms of early symptom development than a **glyphosate** ready-to-use formulation without fatty acid, and was generally comparable with a com. **glyphosate**/acifluorfen ready-to-use formulation.
 ST **glyphosate** fatty acid formulation
 IT Fatty acids, biological studies
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
 (herbicidal activity of **glyphosate** formulations with)
 IT Bermuda grass
 Rhus radicans
 (herbicidal activity of **glyphosate** formulations with fatty acids to)
 IT Kudzu
 (P. lobata, herbicidal activity of **glyphosate** formulations with fatty acids to)
 IT 112-05-0, Nonanoic acid 112-37-8, Undecanoic acid 124-07-2, Octanoic acid, biological studies 143-07-7, Dodecanoic acid, biological studies 334-48-5, Decanoic acid
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
 (herbicidal activity of **glyphosate** formulation with)
 IT 38641-94-0
 RL: AGR (Agricultural use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study); USES (Uses)
 (herbicidal activity of, fatty acids effect on)

NOT prior art

L19 ANSWER 42 OF 49 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 3
 AN 1992:526453 CAPLUS
 DN 117:126453
 TI Fatty acid-based herbicidal composition
 IN Mason, Wenda
 PA Safer, Inc., USA
 SO PCT Int. Appl., 28 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 1

Same case as mine

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9207467	A1	19920514	WO 1991-US8072	19911029
	W: AU, CA, JP				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, NL, SE				
	CA 2095341	AA	19920503	CA 1991-2095341	19911029
	AU 9190177	A1	19920526	AU 1991-90177	19911029
	AU 648622	B2	19940428		
	EP 556283	A1	19930825	EP 1992-900024	19911029
	EP 556283	B1	19980211		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
	JP 06501484	T2	19940217	JP 1992-500889	19911029
	JP 2588350	B2	19970305	JP 1991-500889	19911029
	AT 163125	E	19980215	AT 1992-900024	19911029
	ES 2115663	T3	19980701	ES 1992-900024	19911029
	IL 99925	A1	19960131	IL 1991-99925	19911031
PRAI	US 1990-608306		19901102		
	WO 1991-US8072		19911029		

OS MARPAT 117:126453

AB Environmentally safe, broad-spectrum, synergistic herbicidal compns. comprise **glyphosate** and fatty acids or their salts. The fatty acids are caprylic, pelargonic, capric, undecanoic, 10-undecenoic, lauric, and/or oleic acids. Also usable are the Na or K salts of soybean or coconut fatty acids. A mixt. of 0.1% **Roundup** and 0.1% Na **pelargonate** synergistically controlled *Hypochoeris radicata* and *Sinapis arvensis*.

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ST herbicide synergism **glyphosate** fatty acid

IT Coconut

Soybean

(fatty acids from, synergistic herbicidal compns. contg. **glyphosate** and)

IT Fatty acids, biological studies

RL: BIOL (Biological study)

(herbicidal compns. contg. **glyphosate** and, synergistic)

IT Fatty acids, compounds

RL: BIOL (Biological study)

(salts, herbicidal compns. contg. **glyphosate** and, synergistic)

IT Herbicides

(synergistic, fatty acid- and **glyphosate**-contg. compns.)

IT 112-05-0D, **Pelargonic acid**, mixts. with

glyphosate or **glyphosate** salts 112-37-8D, Undecanoic

acid, mixts. with **glyphosate** or **glyphosate** salts

112-38-9D, 10-Undecenoic acid, mixts. with **glyphosate** or

glyphosate salts 112-80-1D, Oleic acid, mixts. with

glyphosate or **glyphosate** salts 124-07-2D, Caprylic

*my earliest
Cont. case.*

acid, mixts. with **glyphosate** or **glyphosate** salts
143-07-7D, Lauric acid, mixts. with **glyphosate** or
glyphosate salts **334-48-5D**, **Capric**
acid, mixts. with **glyphosate** or **glyphosate**
salts **1002-62-6D**, Sodium caprate, mixts. with **glyphosate** or
glyphosate salts **1071-83-6D**, mixts. with fatty acids
13040-18-1D, Potassium caprate, mixts. with **glyphosate** or
glyphosate salts **14047-60-0D**, Sodium **pelargonate**,
mixts. with **glyphosate** or **glyphosate** salts
23282-34-0D, mixts. with **glyphosate** or **glyphosate**
salts **38641-94-0D**, **Roundup**, mixts. with fatty acids
RL: AGR (Agricultural use); BAC (Biprophylaxie des chocs septiques chez

l'animal. L'invention

permet d'obtenir un vaccin
polyvalent contenant le conjugué d'analogues de lipides A/support
immunogène. L'invention une quantité
neutralisante efficace d'une gammaglobuline A antilipides et une
quantité opsonisante efficace d'une
gammaglobuline spécifique de l'antigène O. On décrit également des
trousses contenant ces
substances.

DETD . . . a glucosamine disaccharide that is
phosphorylated at positions 1 and 41 and has six or
seven esterified fatty acids. Four molecules of 3-
hydroxytetra~~dec~~**anoate** are attached to the glucosamine
disaccharide at positions 2, 31, 2f, and 31; the
hydroxyl groups of the 31-OH-14:0 residues at posi-
tions 21' and 3' (and sometimes 2) are substituted with
normal fatty acids (**dodecanoate**, tetradecanoate,
hexadecanoate-) to form acyloxyacyl groups,
In order to gain insight into the structure-
activity relationship of lipid A1 the biological
activity of chemically. . .

.
acyl groups which can be substituted on
the carbohydrate moiety include, but are not limited
to J' acetate, propionate, butanoate, pentanoate,
hexanoate, heptanoate, octanoate, **nonanoate**, decano-
ate, palmitoyl, oleyl, myristoyl, stearyl, 3-
hydroxybutanoate, 3-hydroxypentanoate,, 3-hydroxy-
hexanoate, 3-hydroxyheptanoate, 3-hydroxyoctanoate,, 3-
hydroxynonanoate,, 3-hydroxydecanoate, 3-hydroxy-
decanoate, 3-hydroxypalmitoyl, 3-hydroxyoleyl, 3-
hydroxymyristoyl, and 3-hydroxystearoyl groups, Also
included within the scope of R groups include the 3-
(C2-C12 acyloxy)-substituted aforementioned C.-C.,, acyl
groups wherein the C2-C,2 acyloxy groups include, but
are not limited to, acetate, propanoate, butanoate,
pentanoate, hexanoate,, heptanoate, octanoate,, nona-
noate, **decanoate**, and **dodecanoate** groups,
Preferred lipid A analog/imtunogenic carrier
conjugates are derived from gentiobiose and have the
following formula (IX).

.
7,

The conjugate is also separated by electrophore-
sis using nitrocellulose paper and serum extracted
from each mouse is tested for antibody binding **accord-**
ing to the Western Blot method. Approximately 70% of
the mice tested are found to have antibody specific
for the conjugate.

L26 ANSWER 2 OF 29 USPATFULL on STN
AN 2003:20198 USPATFULL
TI Enhanced herbicides
IN Coleman, Robert, Okemos, MI, United States
PA Applied CarboChemicals, Alto, MI, United States (U.S. corporation)
Summerdale, Inc., Okemos, MI, United States (U.S. corporation)
PI US 6509297 B1 20030121
AI US 2000-692763 20001019 (9)
RLI Division of Ser. No. US 1999-427476, filed on 26 Oct 1999, now patented,
Pat. No. US 6218336
DT Utility
FS GRANTED
EXNAM Primary Examiner: Pryor, Alton
LREP McLeod, Ian C.
CLMN Number of Claims: 5
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 1117

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides, improved herbicide compositions, methods of making the compositions and methods of controlling plant growth. The subject invention relates to combining fatty acid based and other herbicides with succinic acid, succinic acid derivatives and other additives such as those having essentially no herbicidal activity to increase the activity of the herbicide and provide methods of controlling plant growth by applying a combination of a herbicidal fatty acid with succinic acid and/or succinic acid derivative chemicals and/or other additives. In addition to the use of succinic acid, combining other Krebs cycle acids with herbicides can also provide beneficial effects. Concentrations of herbicides and additives applied to plants in accordance with the invention can include compositions involving 0.1 to 30% herbicide, preferably 0.5 to 15% herbicide and additive and more preferably 1-8% herbicide. The ratio of herbicide, such as fatty acid herbicide to activity enhancing additives can be from 1:10 to 20:1, preferably 1:1 to 20:1, most preferably 1:1 to 5:1.

SUMM **Glyphosate** and paraquat are the number 1 and 2 non-selective herbicides used worldwide. Paraquat is extremely toxic and therefore unacceptable for many applications. **Glyphosate** can be slow acting, commonly requiring 1 to 2 weeks to achieve plant death and is therefore also unsuitable for. . .

SUMM Other conventionally known herbicides include fatty acids, such as **pelargonic acid**, a nine carbon fatty acid, and **caprylic acid**, an eight carbon fatty acid. Scythe, sold by Mycogen/Dow and Liberty, made by AgrEvo are known commercially available herbicides. **Pelargonic acid** is the active ingredient in Scythe and glufosinate-ammonium is the active ingredient in Liberty. However, the activity of these products. . .

SUMM The following examples demonstrate the synergistic relationship between additives (such as succinic acid) and fatty acid herbicides such as **caprylic acid**, **pelargonic acid** and others. Other synergistic relationships between organic acids (for example, citric acid, tartaric acid, malic acid and lactic acid) with **caprylic acid** as the fatty acid were also exhibited. In general, with the exception of tartaric acid, there was a general lack of correspondence between the acidity of the organic acid and the degree of synergy of the organic acid with **caprylic acid**. It was determined that tartaric acid (e.g. L-tartaric acid) exhibited particularly high performance enhancement of **caprylic acid** across a wide variety of plant types.

SUMM . . . oleic acid, and also such acids as acetic, butyric, valeric, hexanoic and heptanoic acid and compounds such as sodium salicylate, **glyphosate** (in Round Up) or glufosinate-ammonium with other organic acids and additives including those having substantially no herbicidal effect could enhance. . .

DETD . . . psi

Variety: dry bean (navy Vista)

Field

Summary: both succinic acid and di-ammonium succinate were synergistic with sodium salicylate and **caprylic acid**

DETD . . .

Variety: black beans (dry bean variety T39)

Summary: both succinic acid and di-ammonium succinate were synergistic with sodium salicylate and **caprylic acid**

DETD

Enhancement of **caprylic acid**/sodium salicylate

as an herbicide, by succinic acid

Relative injury rating*

(average based on 2 ratings)

Succinic All

Treatment acid (%) potatoes plants

1. . .

DETD

Enhancement of **RoundUp Ultra**'s herbicidal activity on snapbeans and potatoes using 1% succinic acid

Average injury rating*

Treatment potatoes snapbeans

1 **RoundUp Ultra**, 1.25% 4.48 2.92

2 **RoundUp Ultra**, 1.25% + 1% succinic acid 4.67 4.78

3 **RoundUp Ultra**, 0.25% 3.35 2.82

4 **RoundUp Ultra**, 0.25% + 1% succinic acid 4.37 3.2

*Rating of 1 to 6 = complete desiccation

Average rating based on 6 independent evaluations of injury to plants

Application rate of 1.25% **RoundUp Ultra** at 40 G/acre = 2
quarts/acre

(0.25% **RoundUp Ultra** at 40G/acre = 0.4 quarts/acre)

Mature snapbeans (with beans pods) and potatoes at 6-8 inches in height were used

Summary: succinic acid synergistic with **RoundUp**

DETD

Succinic acid enhancement of herbicidal activities:

sodium salicylate +/- **caprylic acid**

Injury rating*

Average

Spray rating

Treatment to drip per pot

1 0.75% caprylic + 0.75% sodium salicylate 45.1 2.82

2 0.75% caprylic +. . . drip application: Kentucky bluegrass, velvetleaf, foxtail, tomato, potato and snapbeans

All spray solutions contained 30% acetone and 0.3% Sylgard 309

Caprylic acid was v/v and succinic acid and sodium salicylate were at wt/v

Summary: Succinic acid enhanced effectiveness

DETD

Succinic acid enhancement of herbicidal activities:

sodium salicylate combined with hexanoic, acetic or caprylic/**capric acid**

Injury rating*

Average

Spray rating

Treatment to drip per pot

1 2% hexanoic + 1% sodium salicylate 44.1 3.68
2 2% hexanoic +. . . application: velvetleaf, corn snapbeans, foxtail and tomatoes

All spray solutions contained 30% acetone and 0.3% Sylgad 309

Acetic, hexanoic and caprylic/capric acid were v/v and succinic acid was wt/v

Caprylic/capric (caprylic, capric, caproic and lauric at 58, 40, 1 and 1%, respectively).

DETD

Herbicide activity of **caprylic acid**/sodium salicylate +/- succinic acid

Total Injury

Treatment rating*

1 1% caprylic + 3% sodium salicylate + 0.5% succinic 97.7

2 3% caprylic + 1%. . . bluegrass

Test plants for spray to drip: nutsedge, foxtail and velvetleaf

All spray solutions contained 30% acetone and 0.3% Hasten

Caprylic acid was v/v and succinic acid and sodium salicylate were wt/v

DETD

Herbicidal activity of **caprylic acid** combined with other compounds

(i.e., salts of succinate +/- sodium salicate)

Total injury ratings*

Spray Total

Treatment 60 G/a to drip. . .

DETD . . . for spray to drip: redroot pigweed, lambsquarter, velvetleaf and foxtail

All spray solutions contained 1% emsorb (Henkel) and 0.3% Hasten

Caprylic acid was at v/v and succinic acid and ammonium succinate were at wt/v

DETD . . . for spray to drip: redroot pigweed, velvetleaf, nutsedge and foxtail

All spray solutions contained 1% emsorb (Henkel) and 0.3% Hasten

Caprylic acid was at v/v and succinic acid and ammonium succinate were at wt/v

DETD

Efficacy of 1.5% succinic acid with oleic, caprylic or **pelargonic acid**,

as herbicides in an emulsification system (Emsorb 6900)

Injury rating*, total score for 2 evaluation

Average

Spray Total rating

Treatment 60 G/a. . .

DETD . . . for spray to drip: black nightshade, lambsquarter, foxtail and snapbeans

All spray solutions contained 1% Emsorb (Henkel) and 0.3% Hasten

Caprylic acid was at v/v and succinic acid and sodium salicylate were at wt/v

Succinic acid, alone, had a rating of zero.. . .

DETD

Herbicidal activity: relationships between **caprylic acid** and succinic

acid +/- aminonium sulfate

Total injury ratings, combined, for two separate evaluations*

Spray Total Average

Treatment 60 G/a to drip Rating rating/pot

1	4% caprylic acid	60.7	56.1	116.8	4.49
2	4% caprylic acid + 0.5% succinic acid	63.9	57	120.9	4.65
3	4% caprylic acid + 1% succinic acid	61.6	55.6	117.2	4.51
4	4% caprylic acid + 2% succinic acid	59.4	57.4	116.8	4.49
5	4% caprylic acid + 0.5% succinic acid + ammonium sulfate	60.4	56.6	117	4.5
6	4% caprylic acid + 1% succinic acid + ammonium sulfate	64	57.8	121.8	4.68
7	4% caprylic acid + 2% succinic acid + ammonium sulfate	62.1	57.4	119.5	4.6

*For 60 G/a: 7 total pots/treatment, testing redroot pigweed, foxtail. . .
done for plants treated at both 60 G/a and spray to drip

All treatments included Emsorb 6900 (Henkel) at 1%

Caprylic acid and succinic acid, as v/v and wt/v,
respectively, in water
Succinic acid, alone, had a rating of zero. Caprylic acid +
succinic acid was synergistic

DETD	. . . caproic acid + succinic/NaSal	4.4	104.9	51.9	156.8	4.36
4	3% heptanoic acid + succinic/NaSal	4.5	108.9	54.1	163	4.53
5	3% caprylic acid + succinic/NaSal	4.5	112.4	55.5	167.9	4.67
6	3% pelargonic acid + succinic/NaSal	4.5	111.9	56.6	168.5	4.68
7	3% oleic acid + succinic/NaSal	4.5	105	53.2	158.2	4.39
8	3% caprylic/capric +.	. . .				

DETD

Herbicidal activities: synergy between succinic acid and pelargonic
acid

Total Injury
ratings*
Spray

Treatment 40 G/a 60 G/a to drip Total

1	4% pelargonic acid	41.6	45.6	66.2	153.4
2	4% pelargonic acid + 0.5% succinic acid	42.8	46.7	66.3	155.8
3	0.5% succinic acid	0	0	0	0

*For 40 G/a: 9 total pots/treatment,. . .
DETD

Herbicidal activity on cotton foliage: synergistic relationships
between succinic acid and caprylic/capric acid (c/c)
combinations

Total injury ratings, combined,
for two separate evaluations*

Average
Treatment 60 G/a rating/pot

1 4% c/c. . .
DETD

Herbicidal activities: synergistic relationships between succinic acid
and caprylic/capric acid (c/c) combinations

Total injury ratings, combined
for two separate evaluation*
Average
Spray Total rating
Treatment 60 G/a to drip Rating per. . .
DETD

Herbicidal combinations of caprylic/capric (c/c) or **pelargonic acid**,

with equimolar amounts of succinic acid and ammonium succinate,
on weed varieties

Total Injury ratings* Spray Average
Treatment 40 G/a 60 G/a to. . . 1% succinic acid 88.1 62.5 36.7 187.3 4.46
3 3% c/c + 1.26% ammonium succinate 88.8 60.8 37.4 187 4.45
4 3% **pelargonic acid** 87.7 60.8 37.3 185.8 4.42
5 3% **pelargonic acid** + 1% succinic acid 865.9 62.2 38 187.1
4.45
6 3% **pelargonic acid** + 1.26% ammonium succinate 87.6 61.2
36.9 185.7 4.42

*For 40 G/a: 10 total pots/treatment, testing crab grass, chickweed and common.
. . and ammonium succinate used were equimolar amounts
Since succinic acid (or ammonium succinate) tested alone had a rating of zero,
pelargonic acid (or c/c) + succinic acid (or ammonium
succinate) were synergistic. The exception was: 3% **pelargonic acid** + 1.26% ammonium succinate

DETD

Enhancement of **RoundUp Ultra** (+/- ammonium sulfate or Ams)
herbicidal activity, using succinic acid amendments

RoundUp Ultra at 1 pint/acre (No Sylgard or any other
surfactant used)
Days after treatment: Average
relative injury ratings* rating
Day #6. . .
For each pot (2-20 plants/pot), a rating of (1 to 5 given, where 5 was complete
injury/desiccation of all plants
RoundUp Ultra was at 1 pint/acre and ammonium sulfate, when
used, was at 2%
Spray application at 60 G/acre
Succinic acid tested alone had a rating of zero. **RoundUp Ultra**, alone or **RoundUp Ultra** + ammonia
sulfate were synergistic with succinic acid

DETD

Enhancement of **RoundUp Ultra** (+/- ammonium sulfate or Ams)
herbicidal activity, using succinic acid amendments

RoundUp Ultra at 1 pint/acre
RoundUp Ultra at 1 pint/acre (No Sylgard or any other
surfactant used)
Days after treatment: Average
relative injury ratings* rating
Treatment Day #6. . .
For each pot (2-20 plants/pot), a rating of 1 to 5 given, where 5 was complete
injury/desiccation of all plants
RoundUp Ultra was at 1 pint/acre and ammonium sulfate, when
used, was at 2%
Sylgard 309 (0.3%) added immediately before spray application at 60
gallons/acre
Succinic acid tested alone had a rating of zero. **RoundUp Ultra**, alone or **RoundUp Ultra** + ammonium
sulfate were synergistic with succinic acid.

DETD

Enhancement of **RoundUp Ultra** (+/- ammonium sulfate or Ams)
herbicidal activity,

using succinic acid amendments

RoundUp Ultra (RU) at 1 quart per acre

Average

Days after treatment: relative injury ratings* rating

Treatment Day #5 Day #8 Day #10. . .

For each pot (2-20 plants/pot), a rating of 1 to 5 given, where 5 was complete
injury/desiccation of all plants

RoundUp Ultra was at 1 quart/acre and ammonium sulfate,
when used, was at 2%, wt/v

Sylgard 309 (0.3%) added immediately before spray application at 60
gallons/acre

Succinic acid tested alone had a rating of zero. **RoundUp**

Ultra, alone or **RoundUp Ultra** + ammonium
sulfate were synergistic with succinic acid

DETD

Enhancement of herbicidal activity of **RoundUp Ultra**
/ammonium sulfate

testing selected amendments

pH, spray Days after treatment: injury ratings* average

Treatment solution day #4 day #7 day 11 day #13. . . succinic acid, 1.89%

ammonium succinate, 2.17% ammonium tartrate, 1.91% tartaric acid, 2.45%

citric acid, 1.71% L-malic acid, 0.77% acetic acid

RoundUp Ultra (1.5 pints/acre) and 2% ammonium sulfate

(ams) used in all treatments

Sylgard (0.3%) added immediately before spray application at 60. . .

DETD

Desiccation of cotton foliage: Interaction of **RoundUp Ultra**
and

caprylic acid/capric acid (+/- succinic
acid)

Day after treatment: average rating* Total

Treatment 1 2 5 7 10 12 Rating

1 RU + 2% AMS. . . treatment group, each plant receiving a rating of 1-5)

Cotton variety = DeltaPine NuCotn 33b, at open boll, when treated

Roundup Ultra at 1 quart/acre delivered at 60 G/a

Each treatment contained 1.14% Emsorb 6900 and 0.57% mineral oil

Caprylic/capric (caprylic, capric,. . .

DETD . . . acids were used at volume/volume

All treatments included Henkel's Emsorb 6900 and mineral oil: for each 1% of

caprylic or **pelargonic acid**, 0.286 and 0.143% of

6900 and mineral oil were included in each treatment.

DETD . . . 58, 40, 1 and 1%, respectively, i.e., Henkel's Emery 658, used
at v/v, in water

The active ingredients in Scythe, (**pelargonic acid**) and

caprylic/capric (Henkel's Emery 658) were compared on equimolar basis

DETD

Synergistic Relationship between Succinic or Citric acid and **Caprylic**
Acid, Testing Dry Beans

Treatment effects 3 days after single, foliar application

Green Foliage Yellow Foliage

Overall Foliage Overall Foliage

Treatment Effect Affected. . . (0.5%) + Succinic Acid (0.5%) 1.5 5-10 1 >40

Citric Acid (0.5%) 0 0 0 0

Succinic Acid (0.5%) 0 0 0 0

Caprylic Acid (0.5%) 2.5 10-15 2 70

Caprylic Acid (0.5%) + Citric Acid (0.5%) 3.5 30 3 90

Caprylic Acid (0.5%) + Succinic 4 50 4 >90

Acid (0.5%)

Overall effect: higher scores = greater effect (where 5 equals profound desiccation)

Dry. . . .

DETD 40.5

0.5% tartaric +
0.5% NaSal sodium
salicylate

9 2% caprylic + 3.5 5 5 5 5 5.5 5.5 34.5

1% tartaric

Caprylic acid and dimethyl succinic acid added v/v; all
other compounds added at wt/v.

All solutions in 50% acetone, with solution (20. . . of vine and foliage
desiccation. A "6" = complete desiccation.

Summary: a) addition of succinic or tartaric acid to 1% **caprylic
acid** >> 1% **caprylic acid**, (b) combination of
NaSal + tartaric (or succinic acid) to **caprylic acid**
were the best treatments

DETD

Synergistic Relationships Between:

Succinic Acid + **Caprylic Acid**

Succinic Acid + Sodium Salicylate

Treatment effects 3 days after a single, foliar application, testing soybeans

Overall Foliage

Treatment Effect Affected (%)

Caprylic Acid (1%) 2.5 25-30

Caprylic Acid (1%) + Succinic Acid (1%) 3 30-35

Succinic Acid (1%) 0 0

Sodium Salicylate (1%) 1.5 15-20

Sodium Salicylate (1%) + Succinic Acid. . . .

DETD . . . temperature was 80-100 degrees, fahrenheit). Higher rating
scores represent greater degree of desiccation. A "6" = complete
desiccation. Scythe and **caprylic acid** added v/v. All
other compounds added wt/v.

Summary: a) all combinations with Scythe (except 0.5% NaSal) improved
performance, b) best. . . .

DETD

Synergistic Relationships Between Succinic Acid and **Caprylic
Acid**

at Different Application Rates, Testing Soybeans

Treatment effects 2 days after a single, foliar application

Two independent Sites

(average of 2 sites)

Overall Foliage

Effect Affected (%)

Caprylic Acid (0.2%) 0.5 1.25

Caprylic Acid (0.5%) 2.25 9

Caprylic Acid (1.0%) 4 22.3

Caprylic Acid (0.2%) + Succinic Acid (1.0%) 1.5 6.5

Caprylic Acid (0.5%) + Succinic Acid (1.0%) 3 15

Caprylic Acid (1.0%) + Succinic Acid (1.0%) 4.25 26

Succinic Acid (1.0%) 0 0

Caprylic Acid (0.5%) + L - Lactic Acid (1.0%) 2.75 15

L-Lactic Acid (1.0%) 0.5 1.25

Overall effect: higher scores = greater effect (where. . . .

DETD

Synergy Comparisons of Various Organic Acids with **Caprylic**

Acid,

Testing Soybeans

Treatment effects 3 days after a single, foliar application

Two Independent Sites

(average of 2 sites)

Overall Foliage

Treatments Effect Affected (%)

Caprylic Acid (0.5%)	1.5	5
Caprylic Acid (0.5%) + L--Tartaric Acid (0.5%)	2.75	17.5
Caprylic Acid (0.5%) + L--Malic Acid (0.5%)	2	11.5
Caprylic Acid (0.5%) + Succinic Acid (0.5%)	2.25	12.5
Caprylic Acid (0.5%) + L--Lactic Acid (0.5%)	2.25	11.5
Caprylic Acid (0.5%) + Citric Acid (0.5%)	2.75	17.5
L-Tartaric Acid (0.5%)	0	0
L-Malic Acid (0.5%)	0	0
Succinic Acid (0.5%)	0	0
L-Lactic Acid (0.5%)	.	.

DETD

Synergistic Relationships Between Succinic Acid and **Caprylic Acid** (or Sodium Salicylate), Testing Turf

Treatment effects 2 days after a single, foliar application

Overall

Treatments Effect

Caprylic Acid (1.0%)	2
Caprylic Acid (1.0%) + Succinic Acid (0.5%)	3
Succinic Acid (0.5)	0
Sodium Salicylate (1.0%)	1.5
Sodium Salicylate (1.0%) + Succinic Acid.	.

DETD

Effects of Various Compounds on **Caprylic Acid**

Testing Turf and Covergrass

Treatment effects 1, 3, 6, 7 and 11 days after a single, foliar application at two, independent sites

Overall Effect

10 Evaluations

Treatments (average)

Caprylic Acid (1.0%)	2.45
Caprylic Acid (1.0%) + Adipic Acid (0.5%)	2.6
Caprylic Acid (1.0) + L-Tartaric Acid (0.5%)	3.8
Caprylic Acid (1.0%) + Unipine (0.5%)	3.45
Caprylic Acid (1.0%) + Sodium Salicylate (0.5%)	3.1

Overall effect: higher scores = greater effect (where 5 equals profound desiccation)

Adipic acid, tartaric. . .

DETD

Effects of Various Compounds on **Caprylic Acid**

Testing Turf and Shrub Foliage

Treatment effects 3, 4, 6 and 7 days after a single, foliar application

Overall Effect

29 Evaluations

Treatments (average)

Caprylic Acid (1.0%)	1.05
Caprylic Acid (1.0%) + Adipic Acid (0.5%)	2.19
Caprylic Acid (1.0) + L-Malic Acid (0.5%)	1.4
Caprylic Acid (1.0%) + L-Tartaric Acid (0.5%)	2.19
Caprylic Acid (1.0%) + Unipine (0.5%)	2.4

Caprylic Acid (1.0%) + Sodium Salicylate (0.5%) 2.05
 Caprylic Acid (1.0%) + Succinic Acid (0.5%) 1.95
 Caprylic Acid (1.0%) + L-Lactic Acid (0.5%) 2.16
 Caprylic Acid (1.0%) + Citric Acid (0.5%) 1.47

Overall effect: higher scores = greater effect (where 5 equals profound desiccation)

Adipic acid, tartaric. . .
 DETD

Measurement of pH Values for Test Desiccants
 pH Value

Caprylic Acid (0.5%) 3.30
 Caprylic Acid (0.5%) + L-Tartaric Acid (0.5%) 1.07
 Caprylic Acid (0.5%) + L-Malic Acid (0.5%) 1.49
 Caprylic Acid (0.5%) + Succinic Acid (0.5%) 1.67
 Caprylic Acid (0.5%) + L-Lactic Acid (0.5%) 1.69
 Caprylic Acid (0.5%) + Citric Acid (0.5%) 1.51
 L-Tartaric Acid (0.5%) 1.52
 L-Malic Acid (0.5%) 1.69
 Succinic Acid (0.5%) 1.94
 L-Lactic Acid (0.5%) 1.93
 Citric Acid (0.5%) 1.64
 Caprylic Acid (0.5%) 3.55
 Caprylic Acid (0.5%) + Succinic Acid (0.5%) 1.77
 Succinic Acid (1.0%) 1.85
 Sodium Salicylate (1.0%) 5.63
 Sodium Salicylate (1.0%) + Succinic Acid (0.5%) 2.9
 Caprylic Acid (1.0%) 3.93
 Caprylic Acid (1.0%) + Adipic Acid (0.5%) 2.69
 Caprylic Acid (1.0%) + L-Malic Acid (0.5%) 2.17
 Caprylic Acid (1.0%) + L-Tartaric Acid (0.5%) 2.07
 Caprylic Acid (1.0%) + Unipine 90 (0.5%) 4.06
 Caprylic Acid (1.0%) + Sodium Salicylate (0.5%) 4.29
 DETD . . . pH
 Value

Sodium Salicylate (0.5%) 4.48
 Sodium Salicylate (0.5%) + Succinic Acid (1.0%) 2.76
 Sodium Salicylate (0.5%) + Succinic Acid (1.0%) + 2.78
 Caprylic Acid (0.5%)
 Sodium Salicylate (0.5%) + Caprylic Acid (0.5%) 4.2
 Succinic Acid (1.0%) + Caprylic Acid (0.5%) 2.24
 Sodium Salicylate (0.5%) + Caprylic Acid (0.5%) + 2.46
 L-Tartaric Acid (1.0%)
 Sodium Salicylate (0.5%) + Caprylic Acid (0.5%) + 2.82
 L-Lactic Acid (1.0%)
 Sodium Salicylate (0.5%) + Caprylic Acid (0.5%) + 3.24
 Succinic Acid (1.0%)
 Sodium Salicylate (0.5%) + Caprylic Acid (0.5%) + 2.32
 Succinic Acid (1.0%)
 Sodium Salicylate (0.5%) + Caprylic Acid (0.5%) + 2.02
 L-Lactic Acid (1.0%)
 Sodium Salicylate (0.5%) + Caprylic Acid (0.5%) + 1.58
 L-Tartaric Acid (1.0%)
 Sodium Salicylate (0.5%) + Caprylic Acid (0.5%) + 5.12
 Unipine 90 Acid (1.0%)
 Sodium Salicylate (0.5%) + Caprylic Acid (0.5%) + 2.78
 Adipic Acid (1.0%)
 Caprylic Acid (1.0%) + Gluconic Acid (0.5%) 2.49
 Caprylic Acid (1.0%) + Succinic Acid (0.5%) 2.29
 Caprylic Acid (1.0%) + Beta-Alanine (0.5%) 4.4
 Caprylic Acid (1.0%) 3.85

Caprylic Acid (1.0%) + L-Tartaric Acid (0.5%) 1.76

Caprylic Acid (1.0%) + L-Lactic Acid (0.5%) 1.95

L-Tartaric Acid (0.5%) 1.72

Beta-Alanine (0.5%) 6.65

DETD . . . group where 5 was complete desiccation of all plants

Plot size: 6 .times. 9.3 feet

Summary: 1) although **pelargonic acid** was more effective
for C. Thistle, caprylic/capric performed best on redroot pigweed, 2)
addition of succinic acid was effective

CLM What is claimed is:

1. A herbicidal composition, consisting essentially of
glyphosate, sodium salicylate, and at least one aliphatic
monocarboxyl acid and optionally an additive selected from the group
consisting of succinic. . .

5. The composition of claim 1 wherein the aliphatic monocarboxylic acid
is selected from the group consisting of **pelargonic**
acid, **caprylic acid** and mixtures thereof.

L26 ANSWER 3 OF 29 WPIDS COPYRIGHT 2003 THOMSON DERWENT on STN DUPLICATE 1
AN 2001-366134 [38] WPIDS
CR 2003-624818 [59]
DNC C2001-112196

TI Enhancing the herbicidal activity of aliphatic monocarboxylic acid herbicides, useful as e.g. desiccants and defoliants, comprises adding a succinic acid compound.

DC C03

IN COLEMAN, R

PA (CARB-N) APPLIED CARBOCHEMICALS INC; (SUMM-N) SUMMERDALE INC; (CARB-N) APPLIED CARBOCHEMICALS

CYC 94

PI US 6218336 B1 20010417 (200138)* 20p

WO 2001030157 A1 20010503 (200138) EN

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ
NL OA PT SD SE SL SZ TZ UG ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM
DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC
LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE
SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

AU 2001012035 A 20010508 (200149)

CN 1414832 A 20030430 (200351)

ADT US 6218336 B1 US 1999-427476 19991026; WO 2001030157 A1 WO 2000-US28405
20001013; AU 2001012035 A AU 2001-12035 20001013; CN 1414832 A CN
2000-817831 20001013

FDT AU 2001012035 A Based on WO 2001030157

PRAI US 1999-427476 19991026

AB US 6218336 B UPAB: 20030915

NOVELTY - A method for enhancing the herbicidal activity of an aliphatic monocarboxylic acid herbicide (I) comprises adding a compound (II) selected from succinic acid, dimethyl succinic acid, calcium succinate, magnesium succinate, diammonium succinate and ammonium succinate.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a herbicidal composition comprising (I) and (II).

ACTIVITY - Herbicidal. In a field trial on Katahdin potatoes, application of a composition comprising 5% **pelargonic acid** and 1% diammonium succinate gave a dessication rating (scale of 1-5; 5 = complete desiccation) of 4.23 on day 1 and 4.57 on day 5, compared with 4.07 and 4.43, respectively, for 5% **pelargonic acid** alone.

USE - Compositions comprising (I) and (II) are useful as desiccants and defoliants, e.g. for potatoes, beans and cotton, and for weed control.

ADVANTAGE - Combinations of (I) and (II) have synergistically enhanced herbicidal activity.

Dwg.0/0

AB

(I) and (II).

ACTIVITY - Herbicidal. In a field trial on Katahdin potatoes, application of a composition comprising 5% **pelargonic acid** and 1% diammonium succinate gave a dessication rating (scale of 1-5; 5 = complete desiccation) of 4.23 on day 1 and 4.57 on day 5, compared with 4.07 and 4.43, respectively, for 5% **pelargonic acid** alone.

USE - Compositions comprising (I) and (II) are useful as desiccants and defoliants, e.g. for potatoes, beans and. . .

TECH UPTX: 20010711

TECHNOLOGY FOCUS - AGRICULTURE - Preferred Herbicide: (I) comprises **pelargonic acid, caprylic acid,**

caproic acid, **capric acid,** oleic acid, acetic acid, butyric acid, valeric acid, hexanoic acid and/or heptanoic acid, especially **caprylic acid** and/or **pelargonic acid.**

Preferred Additive: (II) is succinic acid, optionally in admixture with tartaric acid, citric acid, malic acid, lactic acid, adipic acid, . . . of the composition. The (I):(II) ratio is 1:10 to 20:1,

especially 1-20:1. The composition can also contain glufosinate ammonium or **glyphosate**.

L26 ANSWER 4 OF 29 PCTFULL COPYRIGHT 2003 Univentio on STN
AN 2001030157 PCTFULL ED 20020820
TIEN ENHANCED HERBICIDES
TIFR HERBICIDES AMELIORES
IN COLEMAN, Robert
PA APPLIED CARBOCHEMICALS, INC.;
SUMMERDALE, INC.

DT Patent

PI WO 2001030157 A1 20010503

DS W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE
DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG
KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ
PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU
ZA ZW GH GM KE LS MW MZ SD SL SZ TZ UG ZW AM AZ BY KG KZ MD
RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT
SE BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

AI WO 2000-US28405 A 20001013

PRAI US 1999-09/427,476 19991026

ABEN The invention provides, improved herbicide compositions, methods of making the compositions and methods of controlling plant growth. The subject invention relates to combining fatty acid based and other herbicides with succinic acid, succinic acid derivatives and other additives such as those having essentially no herbicidal activity to increase the activity of the herbicide and provide methods of controlling plant growth by applying a combination of a herbicidal fatty acid with succinic acid and/or succinic acid derivative chemicals and/or other additives. In addition to the use of succinic acid, combining other Krebs cycle acids with herbicides can also provide beneficial effects. Concentration of herbicides and additives applied to plants in accordance with the invention can include compositions involving 0.1 to 30 % herbicide, preferably 0.5 to 15 % herbicide and additive and more preferably 1-8 % herbicide. The ratio of herbicide, such as fatty acid herbicide to activity enhancing additives can be from 1:10 to 20:1, preferably 1:1 to 20:1, most preferably 1:1 to 5:1.

ABFR

DETD **Glyphosate** and paraquat are the number 1 and 2 non-selective herbicides used applications. **Glyphosate** can be slow acting, commonly requiring 1 to 2 weeks to achieve plant death and is therefore also unsuitable for many. . .

Other conventionally known herbicides include fatty acids, such as pelargonic a nine carbon fatty acid, and **caprylic acid**, an eight carbon fatty acid. Scythe, aci sold by Mycogen/Dow and Liberty, made by AgrEvo are known commercially 'lable herbicides. **Pelargonic acid** is the active ingredient in Scythe and aval I glufosinate-am-monium is the active ingredient 'in Liberty. However, the activity of these products is. . .

The following examples demonstrate the synergistic relationship between additives (such as succinic acid) and fatty acid herbicides such as **caprylic acid**, **pelargonic acid** and others. Other synergistic relationships between organic acids (for example, citric acid, tartaric acid, malic acid and lactic acid) with **caprylic acid** as the fatty- acid were also exhibited. In general, with the exception of tartaric acid, there

was a general lack of correspondence between the acidity of the organic acid and the degree of synergy of the organic acid with **caprylic acid**. It was determined that tartaric acid (e.g. L-tartaric acid) exhibited particularly high performance enhancement of **caprylic acid** across a wide variety of plant types.

and oleic acid, and also such acids as acetic, butyric, valeric, hexanoic and heptanoic acid and compounds such as sodium salicylate, **glyphosate** (in RoundUp) or glufosinate-ammonium with other organic acids and additives including those having substantially no herbicidal effect could enhance herbicidal activity.

black beans (dry bean variety T39)

Summary: both succinic acid and di-ammonium succinate were synergistic with sodium salicylate and

Example 7

Enhancement of **caprylic acid**/sodium salicylate as an herbicide, by succinic acid

Relative injury rating*

(average, based on 2 ratings)

Treatment Succinic All

acid M) Potatoe R!MLS

0.25% caprylic + 0.25% . . .

Example 9

Enhancement of **RoundUp Ultra**'s herbicidal activity on

snapbeans and potatoes using 1% succinic acid

Average injury rating*

Treatment potatoe snapbeans

I **RoundUp Ultra**, 1.25% 4.48 2.92

RoundUp Ultra, 1.25% + 1% succinic acid 4.67 4.78

RoundUp Ultra, 0.25% 3.35 2.82

RoundUp Ultra, 0.25% + 1% succinic acid 4.37 3.2

C

co *Rating of I to 6 = complete desiccation

(n

I Average rating based on 6 independent evaluations of injury to plants

=i Application rate of 1.25% **RoundUp Ultra** at 40

G/acre = 2 quarts/acre

C

--I (0.25% **RoundUp Ultra** at 40G/acre= 0.4

quarts/acre)

M

Mature snapbeans (with beans pods) and potatoes at 6-8 inches in height were used

M Summary: succinic acid synergistic with **RoundUp**

M

C

r@

M

IQ

-9)

Example 10

Succinic acid enhancement of herbicidal activities.

sodium salicylate +/- **caprylic acid**

Injury rating*

Average
aRM rating
Treatment to drip per Po
0.75% caprylic + 0.75% sodium salicylate 45.1 2.82
0.75% caprylic + 0.75% sodium salicylate + 1%. . . to drip
application: Kentucky bluegrass, velvetleaf, foxtail, tomato,
C
r@ potato and snapbeans
M
IQ All spray solutions contained 30% acetone and 0.3% Sylgard 309
Caprylic acid was v/v and succinic acid and sodium
salicylate were at wt/v
Summary: Succinic acid enhanced effectiveness
Example 11
Enhancement of herbicide formulations with. . .

sodium salicylate combined with hexanoic, acetic or caprylic/
capric acid
Injury rating
Average
Spray rating
Treatment to drip per P
2% hexanoic + 1% sodium salicylate 44.1 3.68
2% hexanoic + 1% sodium salicylate + 1%. . . to drip application:
velvetleaf, corn snapbeans, foxtail and tomatoes
All spray solutions contained 30% acetone and 0.3% Sylgard 309
Acetic, hexanoic and caprylic/**capric acid** were v/v
and succinic acid was wt/v
Caprylic/capric (caprylic, capric, caproic and lauric at 58, 40, 1 and
1%, respectively).

plants
M All solutions included 1% Emsorb 6900 and 0.3% Hasten
Summary: sodium salicylate and succinic acid enhance effectiveness
Example 18
Herbicidal activity of **caprylic acid** combined with
other compounds
(i.e., salts of succinate +/- sodium salicate)
Total injury ratings*
Spray
Treatment 60 G/a ig-@
2% caprylic 61 8.2
2% caprylic +. . . snapbeans
Test plants for spray to drip: redroot pigweed, lambsquarter, velvetleaf
and foxtail
All spray solutions contained 1% emsorb (Henkel) and 0.3% Hasten
Caprylic acid was at v/v and succinic acid and
ammonium succinate were at wt/v
Example 20
Efficacy of caprylic with succinic or ammonium succinate,. . .
snapbeans
Test plants for spray to drip: redroot pigweed, velvetleaf, nutsedge and
foxtail
All spray solutions contained 1% emsorb (Henkel) and 0.3% Hasten
Caprylic acid was at v/v and succinic acid and
ammonium succinate were at wt/v
Example 21
Efficacy of 1.5% succinic acid with oleic, caprylic or
pelargonic acid,
as herbicides in an emulsification system (Emsorb 6900)
Injury rating*, total score
for 2 evaluation
Average
Spray Total rating

Cn Treatment 60 G/a to drip Ratin. . . potatoes
Test plants for spray to drip: black nightshade, lambsquarter, foxtail
and snapbeans

All spray solutions contained 1% Emsorb (Henkel) and 0.3% Hasten

Caprylic acid was at v/v and succinic acid and
sodium salicylate were at wt/v

Succinic acid, alone, had a rating of zero. Succinic acid was
synergistic with oleic, caprylic and pelar

Example 23

Herbicidal activity: relationships between **caprylic
acid** and succinic acid +/- ammonium sulfate

Total Injury ratings, combined,
for two separate evaluations*

Spray Total Average

Treatment 60 G/a to drip Ratin rating/p

4% **caprylic acid** 60.7 56.1 116.8 4.49

Cn 2 4% **caprylic acid** + 0.5% succinic acid 63.9 57
120.9 4.65

C

co 3 4% **caprylic acid** + 1% succinic acid 61.6 55.6
117.2 4.51

Cn

4% **caprylic acid** + 2% succinic acid 59.4 57.4 116.8
4.49

4% **caprylic acid** + 0.5% succinic acid + ammonium
sulfate 60.4 56.6 117 4.5

C 6 4% **caprylic acid** + 1% succinic acid + ammonium
sulfate 64 57.8 121.8 4.68

M 7 4% **caprylic acid** + 2% succinic acid + ammonium
sulfate 62.1 57.4 119.5 4.6

Cn

M

M

M

*For 60 G/a: 7 total pots/treatment, testing redroot pigweed, foxtail.
. . . evaluations (ratings) done for plants treated at both 60 G/a and
spray to drip

All treatments included Emsorb 6900 (Henkel) at 1%

Caprylic acid and succinic acid, as v/v and wt/v,
respectively, in water

Succinic acid, alone, had a rating of zero. **Caprylic
acid** + succinic acid was synergistic

Example 24

Herbicidal activity: comparison of fatty acids, when combined with
succinic acid and sodium salicylg

Total Injury. . . caproic acid + succinic/NaSal 4.4 104.9 51.9 156.8

Cn 4 3% heptanoic acid + succinic/NaSal 4.5 108.9 54.1 163

=i 5 3% **caprylic acid** + succinic/NaSal 4.5 112.4
55.5 167.9

C 6 3 % **pelargonic acid** + succinic/NaSal 4.5 111.9
56.6 168.5

M 7 3% oleic acid + succinic/NaSal 4.5 105 53.2 158.2

Cn 8 3% caprylic/capric +. . .

.
alone, had a rating of zero

r@

M Caprylic/capric (C/Q and succinic acid is synergistic

IQ

-9)

Example 28

Herbicidal activities: synergy between succinic acid and
Pelargonic acid

Total injur

ratin2s*

Spray

Treatment 40 G/a 60 G/a to drip Total

1 4% **pelargonic acid** 41.6 45.6 66.2 153.4

2 4% **pelargonic acid** + 0.5% succinic acid 42.8 46.7
66.3 155.8

3 0.5% succinic acid 0 0 0 0

C

co

(n

*For 40 G/a: 9 total pots/treatment, . . . respectively- i.e.,

M

IQ Henkel's Emery 658, used at v/v, in water

Example 30

Herbicidal activity on cotton foliage: synergistic relationships between
succinic acid

and caprylic/capric acid We) combinations

Total injury ratings, combined,

for two separate evaluations*

Average

Treatment 60 G/a rating/Po

1 4% c/c 18.5 3.08

C 2 4% c/c + 0.5% . . . acid was synergistic

Herbicidal activity: 5% c/c + 0.5% succinic acid > 6% c/c

Example 31

Herbicidal activities: synergistic relationships between succinic acid
and caprylic/capric acid We) combinations

Total injury ratings, combined

for two separate evaluation*

Average

Spray Total rating

Cn Treatment 60 G/a to drip Rating per Po

C 1 4% . . . for individual fatty acid treatments (+/- succinic acid),
before and after storage, were A

M

Example 34

Herbicidal combinations of caprylic/capric (c/c) or **pelargonic
acid**,

with equimolar amounts of succinic acid and ammonium succinate,
on weed varieties

Total Injury ratings*

Spray

Treatment 40 G/a 60 G/a to @Wp Total I

Cn. . . c/c + 1% succinic acid 88.1 62.5 36.7 187.3

co

Cn 3 3% c/c + 1.26% ammonium succinate 88.8 60.8 37.4 187

3% **pelargonic acid** 87.7 60.8 37.3 185.8

C 5 3% **pelargonic acid** + 1% succinic acid 86.9 62.2

38 187.1

6 3 % **pelargonic acid** + 1.26% ammonium succinate

87.6 61.2 36.9 185.7

M

Cn

M

M

M *For 40 G/a: 10 total pots/treatment, testing crab grass, chickweed
and. . . acid and ammonium succinate used were equimolar amounts

Since succinic acid (or ammonium succinate) tested alone had a rating of
zero, **pelargonic acid** (or c/4

(or ammonium succinate) were synergistic. The exception was: 3%

pelargonic acid + 1.26% ammon

Example 35

Enhancement of **RoundUp Ultra** (+/- ammonium sulfate
or Ams) herbicidal activity,

using succinic acid amendments

RoundUp Ultra at 1 pint/acre (No Sylgard or any other surfactant used)

Days after treatment: relative injury ratings*

Dgy #6 Dgy #9 Dgy #1. . . nutsedge,

I

For each pot (2-20 plants/pot), a rating of I to 5 given, where 5 was complete injury/desiccation of all plants

X

C **RoundUp Ultra** was at 1 pint/acre and ammonium sulfate, when used, was at 2%

r@

M Spray application at 60 G/acre

IQ Succinic acid tested alone had a rating of zero. **RoundUp Ultra**, alone or **RoundUp Ultra** + ammonif

-9)

sulfate were synergistic with succinic acid

Example 3

Enhancement of **RoundUp Ultra** ammonium sulfate or Ams) herbicidal activity,

using succinic acid amendments

RoundUp Ultra at 1 pint/acre

Average

Days after treatment: relative injury ratings* rating

Treatment Day #6 Day # Day #1 I Dgy #14 per Po

C. . . For each pot (2-20 plants/pot), a rating of I to 5 given, where 5 was complete injury/desiccation of all plants

r@

M **RoundUp Ultra** was at 1 pint/acre and ammonium sulfate, when used, was at 2%

IQ Sylgard 309 (0.3%) added immediately before spray application at 60 gallons/acre

Succinic acid tested alone had a rating of zero. **RoundUp**

Ultra, alone or **RoundUp Ultra** + ammonil

sulfate were synergistic with succinic acid.

Example 37

Enhancement of **RoundUp Ultra** (+/- ammonium sulfate or Ams) herbicidal activity,

using succinic acid amendments

RoundUp Ultra (RU) at 1 quart per acre

Average

Days after treatment: relative injury ratings* rating

Treatment Day #5 Day #8 Dgy #1 Day #13. . . pigweed

M

M For each pot (2-20 plants/pot), a rating of I to 5 given, where 5 was complete injury/desiccation of all plants

I

RoundUp Ultra was at 1 quart/acre and ammonium sulfate, when used, was at 2%, wt/v

X

C Sylgard 309 (0.3%) added immediately before spray application at 60 gallons/acre

r@

M Succinic acid tested alone had a rating of zero. **RoundUp**

Ultra, alone or **RoundUp Ultra** + ammonic

sulfate were synergistic with succinic acid

Example 38

Enhancement of herbicidal activity of **RoundUp Ultra** /ammonium sulfate

testing selected amendments

pH. spray -Days after treatment: injury ratings* 2

Treatment solution day #4 day #7 day 11 dgy #13 average I

I. . . of amendments used: 1.5% succinic acid, 1.89% ammonium succinate, 2.17% ammon

X
 C 2.45% citric acid, 1.71% L-malic acid, 0.77% acetic acid
 r@
 M **RoundUp Ultra** (1.5 pints/acre) and 2% ammonium sulfate (ams) used in all treatments
 IQ
 Sylgard (0.3%) added immediately before spray application at 60 gallons/acre
 Amendments. . . . water
 Application volume was 40 G/acre
 Synergistic relationships exist between 3% c/c and each amendment tested
 Example 40
 Desiccation of cotton foliage: Interaction of **RoundUp Ultra** and
 caprylic acid/capric acid (+/- succinic acid)
 Day after treatment: average rating* Total
 Treatment 1 2 5 7 10 12 Ratin
 I RU + 2% AMS. . . . plants per treatment group, e
 plant receiving a rating of 1-5)
 M Cotton variety = DeltaPine NuCotn 33b, at open boll, when treated
 M
 RoundUp Ultra at I quart/acre delivered at 60 G/a
 X Each treatment contained 1. 14% Emsorb 6900 and 0. 5 7% mineral oil
 C
 r@. . . .
 .
 acids were used at volume/volume
 C
 r@ All treatments included Henkel's Emsorb 6900 and mineral oil: for each 1% of caprylic or **pelargonic acid**,
 M 0.286 and 0. 143% of 6900 and mineral oil were included in each treatment.
 IQ
 -9)
 Example 43
 Herbicidal enhancement of pelargonic by succinic acid. . . . at 58, 40, 1 and 11/o, respectively, i.e., 1%)
 Henkel's Emery 65 8, used at v/v, in water
 The active ingredients in Scythe, (**pelargonic acid**) and caprylic/capric (Henkel's Emery 65 8) were compared on equimolar basis
 Example 44
 Synergistic Relationship between Succinic or Citric acid and **Caprylic Acid**, Testing Dry Beans
 Treatment effects 3 days after single, foliar application
 Green Foliage Yellow Foliag
 Overall Foliage Overall Foliage
 Treatment Effect Affected Effect Affected. . . . Acid (0.5%) 0 0 0 0
 C
 I Succinic Acid (0.5%) 0 0 0 0
 m CapTylic Acid (0.5%) 2.5 10-15 2 70
 m **Caprylic Acid** (0.5%) + Citric Acid (0.5%) 3.5 30 3
 90
 m
 Caprylic Acid (0.5%) + Succinic Acid (0.5%) 4 50 4
 >90
 C Overall effect: higher scores = greater effect
 r@ (where 5 equals profound. . . . 6 6 6 6 6 6
 M
 sodium salicylate
 Cn
 M 9 2% caprylic + 1% tartaric 3.5 5 5 5 5 5.5 5.5

M
M

X **Caprylic acid** and dimethyl succinic acid added
v/v, all other compounds added at wt/v.
C All solutions in 50% acetone, with solution (20. . . of vine and
foliage desiccation. A 6 = complete desiccation.
-9) Summary: a) addition of succinic or tartaric acid to 1%
caprylic acid>>1% **caprylic acid**,
(b) combination of
NaSal + tartaric (or succinic acid) to **caprylic acid**
were the best treatments
Example 48
Synergistic Relationships Between.

Succinic Acid + **Caprylic Acid**
Succinic Acid + Sodium Salicylate
Treatment effects 3 days after a single, foliar application, testing
soybeans
Overall Foliage
Treatment Effect Affected
 Caprylic Acid (1%) 2.5 25-30
C **Caprylic Acid** (1%) + Succinic Acid (1%) 3 30-35
co
Succinic Acid (1%) 0 0
Sodium Salicylate (1%) 1.5 15-20
C Sodium Salicylate (1%) + Succinic. . . effect
8 10 8 18
9 12 15 27
10 16 19 35
1 1 145 10 24.5

Example 50
Synergistic Relationships Between Succinic Acid and **Caprylic Acid**

at Different Application Rates, Testing Soybeans
Treatment effects 2 days after a single, foliar application
Two Independent Sites
(average of 2 sites)
Overall
Effect

Caprylic Acid (0.21/6) 0.5
 Caprylic Acid (0.5%) 2.25
C
co **Caprylic Acid** (1.0%) 4
 Caprylic Acid (0.2%) + Succinic Acid (1.0%) 1.5
C **Caprylic Acid** (0.5%) + Succinic Acid (1.0%) 3
m **Caprylic Acid** (1.0%) + Succinic Acid (1.0%) 4.25
m Succinic Acid (1.01/6) 0
m **Caprylic Acid** (0.5%) + L - Lactic Acid (1.0%) 2.75
L-Lactic Acid (1.01/6) 0.5

X
C

r@ Overall effect: higher scores = greater effect
m (where 5. . . profound desiccation)
Soybean variety = Stine 2250
Succinic acid and lactic acid had synergistic effect
Example 51

Synergy Comparisons of Various Organic Acids with **Caprylic Acid**,

Testing Soybeans
Treatment effects 3 days after a single, foliar application
Two Independent Sites
(average of 2 sites)
Overall Foliage
Treatments Effect Affected M

Caprylic Acid (0.5%) 1.5 5
 C **Caprylic Acid** (0.5%) + L-Tartaric Acid (0.5%) 2.75
 17.5
 co **Caprylic Acid** (0.5%) + L-Malic Acid (0.5%) 2 11.5
 (n
Caprylic Acid (0.5%) + Succinic Acid (0.5%) 2.25
 12.5
Caprylic Acid (0.5%) + L-Lactic Acid (0.5%) 2.25
 11.5
 C
 I **Caprylic Acid** (0.5%) + Citric Acid (0.5%) 2.75 17.5
 M L-Tartaric Acid (0.5%) 0 0
 L-Malic Acid (0.5%) 0 0
 M Succinic Acid (0.5%) . . . desiccation)
 Soybean variety = Stine 2250
 Tartaric, malic, succinic, lactic and citric acid showed synergistic
 effects
 Example 52
 Synergistic Relationships Between Succinic Acid and **Caprylic**
Acid (or Sodium Salicylate), Testing Turf
 Treatment effects 2 days after a single, foliar application
 Overall
 Treatments Effect
Caprylic Acid (1.0%) 2
Caprylic Acid (1.0%) + Succinic Acid (0.5%) 3
 Cn Succinic Acid (0.5%) 0
 C Sodium Salicylate (1.0%) 1.5
 co Sodium Salicylate (1.0%) + Succinic. . . Acid (0.5%) 2
 Cn
 --I
 =i Overall effect: higher scores = greater effect
 C
 I (where 5 equals profound desiccation)
 M
 Cn
 M
 M
 M
 --I
 C
 r@
 M
 IQ
 -9)
 Example 53
 Effects of Various Compounds on **Caprylic Acid**
 Testing Turf and Covergrass
 Treatment effects 1, 3 6, 7 and II days after a single,
 foliar application at two, independent sites
 Overall Effect
 10 Evaluations
 Treatments (average)
Caprylic Acid (1.0%) 2.45
 C **Caprylic Acid** (1.0%) + Adipic Acid (0.5%) 2.6
 co
 (n **Caprylic Acid** (1.0) + L-Tartairic Acid
 (0.5%) 3.8
Caprylic Acid (1.0%) + Unipine (0.5%) 3.45
 C **Caprylic Acid** (1.0%) + Sodium Salicylate(0.5%) 3.1
 M Overall effect: higher scores = greater effect
 (where 5 equals profound desiccation)
 M
 M Adipic acid, tartaric acid, unipine and sodium salicylate showed
 synergistic effects

C
 r@
 M
 Example 54
 Effects of Various Compounds on **Caprylic Acid**
 Testing Turf and Shrub Foliage
 Treatment effects 3 , 4, 6 and 7 days after a single, foliar application
 Overall Effect
 29 Evaluations
 Treatments (average)
 Caprylic Acid (1.0%) 1.05
 Caprylic Acid (1.0%) + Adipic Acid (0.5%) 2.19
 C **Caprylic Acid** (1.0) + L-Malic Acid (0.5%) 1.4
 co
 (n
 Caprylic Acid (1.0%) + L-Tartaric Acid (0.5%) 2.19
 Caprylic Acid (1.0%) + Unipine (0.5%) 2.4
 C
 --I
 M **Caprylic Acid** (1.0%) + Sodium Saticylate(0.5%)
 2.05
 Caprylic Acid (1.0%) + Succinic Acid (0.5%) 1.95
 M
 M
 Caprylic Acid (1.0%) + L-Lactic Acid (0.5%) 2.16
 Caprylic Acid (1.0%) + Citric Acid (0.5%) 1.47
 C
 r@ Overall effect: higher scores = greater effect
 M
 1%) (where 5 equals profound desiccation)
 -9) Adipic acid, . . . tartaric acid, unipine, sodium salicylate,
 succinic acid, lactic acid and citric acid showed
 Example 55
 Measurement of pH Values for Test Desiccants
 pH Valp
 Caprylic Acid (0.5%) - 3.30
 Caprylic Acid (0.5%) + L-Tartaric Acid (0.5%) 1.07
 Caprylic Acid (0.5%) + L-Malic Acid (0.5%) 1.49
 Caprylic Acid (0.5%) + Succinic Acid (0.5%) 1.67
 Caprylic Acid (0.5%) + L-Lactic Acid (0.5%) 1.69
 Caprylic Acid (0.5%) + Citric Acid (0.5%) 1.51
 C: L-Tartaric Acid (0.5%) 1.52
 co
 L-Malic Acid (0.5%) 1.69
 Succinic Acid (0.5%) 1.94
 C: L-Lactic Acid (0.5%) 1.93
 M Citric Acid (0.5%) 1.64
 M **Caprylic Acid** (0.5%) 3.55
 M
 Caprylic Acid (0.5%) + Succinic Acid (0.5%) 1.77
 Succinic Acid (1.0%) 1.85
 C:
 r@ Sodium Salicylate (1.0%) 5.63
 M
 IQ Sodium Salicylate (1.0%) + Succinic Acid (0.5%) 2.9
 Caprylic Acid (1.0%) 3.93
 Caprylic Acid (1.0%) + Adipic Acid (0.5%) 2.69
 Caprylic Acid (1.0%) + L-Malic Acid (0.5%) 2.17
 Caprylic Acid (1.0%) + L-Tartaric Acid (0.5%) 2.07
 Caprylic Acid (1.0%) + Unipine 90 (0.5%) 4.06
 Caprylic Acid (1.0%) + Sodium Salicylate (0.5%) 4.29
 Example 56
 Measurement of i)H Values for Test Desiccants
 pH

Value

Sodium Salicylate (0.5%) 4.48

Sodium Salicylate (0.5%) + Succinic Acid (1.0%) 2.76

Sodium Salicylate (0.5%) + Succinic Acid (1.0%) + **Caprylic Acid** (0.5%) 2.78

Sodium Salicylate (0.5%) + **Caprylic Acid** (0.5%) 4.2

Succinic Acid (1.01/o) + **Caprylic Acid** (0.51/6) 2.24

C: Sodium Salicylate (0.5%) + **Caprylic Acid** (0.5%) +

L-Tartaric Acid (1.01/6) 2.46

co

Sodium Salicylate (0.51/6) + **Caprylic Acid** (0.51/6)

+ L-Lactic Acid (1.0%) 2.82

Sodium Salicylate (0.5%) + **Caprylic Acid** (0.5%) +

Succinic Acid (1.01/o) 3.24

C:

--I Sodium Salicylate (0.5%) + **Caprylic Acid** (0.5%)

+ Succinic Acid (1.01/6) 2.32

M

Sodium Salicylate (0.5%) + **Caprylic Acid** (0.5%) +

L-Lactic Acid (1.01/6) 2.02

Sodium Salicylate (0.5%) + **Caprylic Acid** (0.51/6) +

L-Tartaric Acid (1.0%) 1.58

M

M Sodium Salicylate (0.5%) + **Caprylic Acid** (0.51/6)

+ Unipine 90 Acid (1.0%) 5.12

Sodium Salicylate (0.5%) + **Caprylic Acid** (0.59/6) +

Adipic Acid (1.0%) 2.78

C: **Caprylic Acid** (1.01/6) + Gluconic Acid (0.51/o)

2.49

r@

M **Caprylic Acid** (1.01/o) + Succinic Acid (0.51/6)

2.29

IQ **Caprylic Acid** (1.01/6) + Beta-Alanine (0.5%) 4.4

Caprylic Acid (1.0%) 3.85

Caprylic Acid (1.0%) + L-Tartaric Acid (0.5%) 1.76

Caprylic Acid (1.0%) + L-Lactic Acid (0.5%) 1.95

L-Tartaric Acid (0.51/o) 1.72

Beta-Alanine (0.5%) 6.65

Example 57

Field trial comparisons of caprylic/capric and pelargonic acids
on mixed. . .

.
2 plots per treatment group where 5 was complete desiccation of all
plants

Plot size: 6 X 9.3 feet

Summary: 1) although **pelargonic acid** was more

effective for C. Thistle, caprylic/capric performed best on redroot pigv

C

r@ effective

M

Example 59

Succinic Acids Potentiation of Sodium Salicylate,

Testing Cotton

Treatment. . .

CLMEN. . . of claim 1, wherein the fatty acid herbicide includes at
least one member selected from the group consisting of pelargomic acid,
caprylic acid,
id, **capric acid**, oleic acid, acetic, butyric acid,
valeric acid, hexanoic acid
caproic aci I I
and heptanoic acid.

.
of claim 1, wherein the fatty acid herbicide 'includes at

least one member selected from the group consisting of pelargomic acid, **caprylic acid**, caproic acid, **capric acid** and oleic acid.

5 The composition of claim 1, wherein the fatty acid herbicide comprises **caprylic acid** and/or pelargomic acid.

13 The composition of claim 1, wherein the additive comprises succinic 'd and the herbicide comprises **pelargonic acid** and/or **caprylic acid**.
aci

19 The method claim 18, wherein the fatty acid herbicide includes at least one member selected from the group consisting of **pelargonic acid**, **caprylic acid**, caproic acid, capnic acid, oleic acid, acetic, butyric acid, valeric acid, hexanoic acid and heptanoic acid and the additive 'includes at least. . .

20 The method of claim 18, wherein the herbicide comprises pelargomic and/or **caprylic acid** and the additive comprises succinic acid.

69

SUBSTITUTE SHEET (RULE 26)

. A herbicidal composition, comprising sodium salicylate and an additive selected from the. . .

23 A herbicidal composition, comprising glufosm'ate-ammonium or **glyphosate** and an additive selected from the group consisting of succinic acid, succinic acid derivatives, tartaric acid, citric acid, malic acid, lactic. . .

L26 ANSWER 13 OF 29 USPATFULL on STN
 AN 92:31436 USPATFULL
 TI Fatty acid based herbicidal compositions
 IN Puritch, George S., Saanichton, Canada
 Bradbury, Roderick, Sidney, Canada
 Mason, Wenda, Brentwood Bay, Canada
 PA Safer, Inc., Minneapolis, MN, United States (U.S. corporation)
 PI US 5106410 19920421
 AI US 1990-588196 19900926 (7)
 DCD 20071204
 RLI Division of Ser. No. US 1989-421146, filed on 13 Oct 1989, now patented,
 Pat. No. US 4975110
 DT Utility
 FS Granted
 EXNAM Primary Examiner: Raymond, Richard L.; Assistant Examiner: Bembenick, B.
 LREP Lahive & Cockfield
 CLMN Number of Claims: 7
 ECL Exemplary Claim: 1
 DRWN No Drawings
 LN.CNT 501

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB An environmentally compatible herbicidal composition comprises a fatty acid active ingredient, and a surfactant component. In one embodiment the composition comprises a ready-to-use microemulsion having a fatty acid active ingredient, one or more quaternary ammonium salt surfactants and water. Another embodiment comprises a concentrated herbicidal formulation having a fatty acid active ingredient and one or more surfactants. The concentrate may subsequently be diluted with water to yield a ready-to-use formulation. Each of these compositions is a foliar applied herbicide which effectively controls a variety of unwanted weed and grass species.

The fatty acid component of these herbicidal compositions comprises **pelargonic acid** which may be used alone or as the predominant component of a mixture of fatty acids including caprylic, pelargonic, capric, undecanoic, and lauric.

AB The fatty acid component of these herbicidal compositions comprises **pelargonic acid** which may be used alone or as the predominant component of a mixture of fatty acids including caprylic, pelargonic, capric, . . .

SUMM . . . one or a mixture of alpha monocarboxylic fatty acids having a hydrocarbon chain with between 8 and 12 carbon atoms. **Pelargonic acid** is the preferred fatty acid, and it may be used alone or in combination with other fatty acids. Preferably, the . . .

DETD . . . alpha monocarboxylic fatty acids having a hydrocarbon chain with between 8 and 12 carbon atoms. Preferably, the fatty acid is **pelargonic acid**, which may be used alone or as the major constituent (i.e., about 90%) of a mixture which includes other fatty acids. In one preferred embodiment the fatty acid component comprises a mixture of **pelargonic acid**, caprylic and capric acids wherein **pelargonic acid** accounts for most of the mixture and caprylic and capric acids are present in relatively small amounts. Such a mixture, having about 94% **pelargonic acid**, 4% **caprylic acid** and 2% **capric acid**, is commercially available under the trademark "EMERY 1202" from Emery Division, Quantum Chemical Corporation, Cincinnati, Ohio. In another embodiment, **pelargonic acid** may be combined with undecanoic acid and utilized as the active ingredient of the herbicidal composition. Preferably, the active ingredient. . .

DETD . . . Ethoquad 18/25 (5%)
 -- 90%

F 5% Ethoquad 18/25 Arquad T50 90%
 (4.5%) (0.5%)

*The fatty acid component comprises about 94% **pelargonic acid**, 2% **capric acid** and 4% **caprylic acid**.

**In each formulation, the amount of water may be reduced to accommodate the addition of an antifoaming agent.

DETD 18% Stepfac 8170
H 80 2% Pluronic F68
18% Stepfac 8170

*The fatty acid component comprises approximately 94% **pelargenic acid**, 2% **capric acid** and 4% **caprylic acid**.

DETD . . . sprayer timed to deliver 60, 90 and 120 gpa aqueous carrier for each concentration level of the formulation. Paraquat and **glyphosate** were each applied at 0.375 gpa ai with 60 gpa aqueous carrier by way of comparison.

DETD TABLE V(A)

	Percent Weed Damage (14 D.A.T)	
	Parraquat	Glyphosate
	.375 gpa ai	.375 gpa ai
Common Name.sup.1	60 gpa carrier	60 gpa carrier

False dandelion	69	61
Grasses	82	72
Cranesbill	79	27
Narrow-leaf	--	--

DETD TABLE VI(A)

	Percent Weed Damage After Respray In Orchard (14 D.A.T.)	
	Parraquat	Glyphosate
	.375 gpa ai	.375 gpa ai
Common Name.sup.1	60 gpa carrier	60 gpa carrier

False dandelion	97	97
Grasses	95	97
Cranesbill	--	90
Sheep. . . .		

CLM What is claimed is:

2. The composition of claim 1 wherein the fatty acid is predominantly **pelargonic acid**.

3. The composition of claim 2 wherein the fatty acid component comprises approximately 94 weight percent **pelargonic acid**, 4 weight percent **caprylic acid** and 2 weight percent **capric acid**.

L26 ANSWER 14 OF 29 USPATFULL on STN
 AN 92:22753 USPATFULL
 TI Fatty acid based herbicidal compositions
 IN Puritch, George S., Saanichton, Canada
 Bradbury, Roderick, Sidney, Canada
 Mason, Wenda, Brentwood Bay, Canada
 PA Safer, Inc., Minneapolis, MN, United States (U.S. corporation)
 PI US 5098467 19920324
 AI US 1991-710764 19910604 (7)
 RLI Continuation of Ser. No. US 1990-588196, filed on 26 Sep 1990 which is a
 division of Ser. No. US 1989-421146, filed on 13 Oct 1989, now patented,
 Pat. No. US 4975110
 DT Utility
 FS Granted
 EXNAM Primary Examiner: Raymond, Richard L.; Assistant Examiner: Bembenick, B.
 LREP Lahive & Cockfield
 CLMN Number of Claims: 9
 ECL Exemplary Claim: 1
 DRWN No Drawings
 LN.CNT 512

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB An environmentally compatible herbicidal composition comprises a fatty
 acid active ingredient, and a surfactant component. In one embodiment
 the composition comprises a ready-to-use microemulsion having a fatty
 acid active ingredient, one or more quaternary ammonium salt surfactant
 and water. Another embodiment comprises a concentrated herbicidal
 formulation having a fatty acid active ingredient and one or more
 surfactants. The concentrate may subsequently be diluted with water to
 yield a ready-to-use formulation. Each of these compositions is a foliar
 applied herbicide which effectively controls a variety of unwanted weed
 and grass species.

The fatty acid component of these herbicidal compositions comprises
pelargonic acid which may be used alone or as the
 predominant component of a mixture of fatty acids including caprylic,
 pelargonic, capric, undecanoic, and lauric.

AB The fatty acid component of these herbicidal compositions comprises
pelargonic acid which may be used alone or as the
 predominant component of a mixture of fatty acids including caprylic,
 pelargonic, capric, . . .

SUMM . . . one or a mixture of alpha monocarboxylic fatty acids having a
 hydrocarbon chain with between 8 and 12 carbon atoms. **Pelargonic**
acid is the preferred fatty acid, and it may be used alone or in
 combination with other fatty acids. Preferably, the . . .

SUMM . . . alpha monocarboxylic fatty acids having a hydrocarbon chain
 with between 8 and 12 carbon atoms. Preferably, the fatty acid is
pelargonic acid, which may be used alone or as the
 major constituent (i.e., about 90%) of a mixture which includes other
 fatty acids. In one preferred embodiment the fatty acid component
 comprises a mixture of **pelargonic acid**, caprylic and
 capric acids wherein **pelargonic acid** accounts for
 most of the mixture and caprylic and capric acids are present in
 relatively small amounts. Such a mixture, having about 94%
pelargonic acid, 4% **caprylic acid**
 and 2% **capric acid**, is commercially available under
 the trademark "EMERY 1202" from Emery Division, Quantum Chemical
 Corporation, Cincinnati, Ohio. In another embodiment, **pelargonic**
acid may be combined with undecanoic acid and utilized as the
 active ingredient of the herbicidal composition. Preferably, the active
 ingredient. . .

SUMM . . . Ethoquad 18/25 (5%)

-- 90%

F 5% Ethoquad 18/25 (4.5%)
 Arquad T50 (0.5%)

*The fatty acid component comprises about 94% **pelargonic acid**, 2% **capric acid** and 4% **caprylic acid**.

**In each formulation, the amount of water may be reduced to accommodate the addition of an antifoaming agent.

SUMM 18% Stepfac 8170

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18% Stepfac 8170

*The fatty acid component comprises approximately 94% **pelargenic acid**, 2% **capric acid** and 4% **caprylic acid**.

DETD . . . sprayer timed to deliver 60, 90 and 120 gpa aqueous carrier for each concentration level of the formulation. Paraquat and **glyphosate** were each applied at 0.375 gpa ai with 60 gpa aqueous carrier by way of comparison.

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Cranesbill	79	27
Narrow-leaf	--	

DETD TABLE VI(A)

	Percent Weed Damage After Respray In Orchard (14 D.A.T.)	
	Paraquat	Glyphosate
	.375 gpa ai	.375 gpa ai
Common Name.sup.1		
	60 gpa carrier	60 gpa carrier

False dandelion	97	97
Grasses	95	97
Cranesbill	--	90
Sheep.		

CLM What is claimed is:

4. The method of claim 1 wherein the fatty acid component of the herbicidal composition is predominantly **pelargonic acid**.

5. The method of claim 4 wherein the fatty acid component of the herbicidal composition comprises approximately 94 weight **pelargonic acid**, 4 weight percent **caprylic acid**, and 2 weight percent **capric acid**.

L26 ANSWER 19 OF 29 USPATFULL on STN
 AN 90:92838 USPATFULL
 TI Fatty acid based herbicidal compositions
 IN Puritch, George S., Saanichton, Canada
 Bradbury, Roderick, Sidney, Canada
 Mason, Wenda, Brentwood Bay, Canada
 PA Safer, Inc., Newton, MA, United States (U.S. corporation)
 PI US 4975110 19901204
 AI US 1989-421146 19891013 (7)
 DT Utility
 FS Granted
 EXNAM Primary Examiner: Raymond, Richard L.; Assistant Examiner: Bembenick, Brian
 LREP Lahive & Cockfield
 CLMN Number of Claims: 11
 ECL Exemplary Claim: 1
 DRWN No Drawings
 LN.CNT 527

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB An environmentally compatible herbicidal composition comprises a fatty acid active ingredient, and a surfactant component. In one embodiment the composition comprises a ready-to-use microemulsion having a fatty acid active ingredient, one or more quaternary ammonium salt surfactants and water. Another embodiment comprises a concentrated herbicidal formulation having a fatty acid active ingredient and one or more surfactants. The concentrate may subsequently be diluted with water to yield a ready-to-use formulation. Each of these compositions is a foliar applied herbicide which effectively controls a variety of unwanted weed and grass species.

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AB The fatty acid component of these herbicidal compositions comprises **pelargonic acid** which may be used alone or as the predominant component of a mixture of fatty acids including caprylic, pelargonic, capric, . . .

SUMM . . . one or a mixture of alpha monocarboxylic fatty acids having a hydrocarbon chain with between 8 and 12 carbon atoms. **Pelargonic acid** is the preferred fatty acid, and it may be used alone or in combination with other fatty acids. Preferably, the . . .

SUMM . . . alpha monocarboxylic fatty acids having a hydrocarbon chain with between 8 and 12 carbon atoms. Preferably, the fatty acid is **pelargonic acid**, which may be used alone or as the major constituent (i.e., about 90%) of a mixture which includes other fatty acids. In one preferred embodiment the fatty acid component comprises a mixture of **pelargonic acid**, caprylic and capric acids wherein **pelargonic acid** accounts for most of the mixture and caprylic and capric acids are present in relatively small amounts. Such a mixture, having about 94% **pelargonic acid**, 4% **caprylic acid** and 2% **capric acid**, is commercially available under the trademark "EMERY 1202" from Emery Division, Quantum Chemical Corporation, Cincinnati, Ohio. In another embodiment, **pelargonic acid** may be combined with undecanoic acid and utilized as the active ingredient of the herbicidal composition. Preferably, the active ingredient. . .

SUMM -- . . . Ethoquad 18/25 (5%)

F 5% Ethoquad 18/25 (4.5%) 90%

Arquad T50 (0.5%)

90%

*The fatty acid component comprises about 94% **pelargonic acid**, 2% **capric acid** and 4% **caprylic acid**.

**In each formulation, the amount of water may be reduced to accommodate the addition of an antifoaming agent.

SUMM . . . 18% Stepfac 8170
H 80 2% Pluronic F68
18% Stepfac 8170

*The fatty acid component comprises approximately 94% **pelargenic acid**, 2% **capric acid** and 4% **caprylic acid**.

DETD . . . sprayer timed to deliver 60, 90 and 120 gpa aqueous carrier for each concentration level of the formulation. Paraquat and **glyphosate** were each applied at 0.375 gpa ai with 60 gpa aqueous carrier by way of comparison.

DETD TABLE V(A)

Common Name.sup.1	Percent Weed Damage (14 D.A.T)	
	Parraquat .375 gpa ai	Glyphosate .375 gpa ai
60 gpa carrier		
60 gpa carrier		

False dandelion	69	61
Grasses	82	72
Cranesbill	79	27
Narrow-leaf	--	

DETD TABLE VI(A)

Common Name.sup.1	Percent Weed Damage After Respray In Orchard (14 D.A.T.)	
	Parraquat .375 gpa ai	Glyphosate .375 gpa ai
60 gpa carrier		
60 gpa carrier		

False dandelion	97	97
Grasses	95	97
Cranesbill	--	90
Sheep.		

CLM What is claimed is:

2. The composition of claim 1 wherein the fatty acid component is predominantly **pelargonic acid**.

3. The composition of claim 2 wherein the fatty acid component comprises approximately 94 weight percent **pelargonic acid**, 4 weight percent **caprylic acid** and 2 weight percent **capric acid**.

8. The composition of claim 7 comprising a fatty acid component having approximately 94 weight Percent **pelargonic acid**, 4 weight percent **caprylic acid** and 2 weight percent **capric acid**; approximately 18 weight percent of an ethoxylated phosphate ester surfactant; and approximately 2 weight percent of a salt of an. . .

RN 1071-83-6 REGISTRY
 CN Glycine, N-(phosphonomethyl)- (7CI, 8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN (Carboxymethylamino)methylphosphonic acid
 CN Accord
 CN Carboxymethylaminomethanephosphinic acid
 CN Folusen
 CN Forsat
 CN Glialka
 CN Glialka 36
 CN Gliz
 CN Gliz 480CS
 CN Glyphodin A
 CN Glyphomax
 CN **Glyphosate**
 CN Glyphosate CT
 CN Herbatop
 CN Hockey
 CN Kickdown
 CN Lancer
 CN MON 2139
 CN MON 6000
 CN N-Phosphomethylglycine
 CN N-Phosphonomethylglycine
 CN NSC 151063
 CN Phorsat
 CN Phosphonomethylglycine
 CN Phosphonomethyliminoacetic acid
 CN Rebel Garden
 FS 3D CONCORD
 DR 37337-60-3, 75241-08-6, 42618-09-7
 MF C3 H8 N O5 P
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS,
 BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN,
 CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHM, CSNB, DDFU, DRUGU,
 EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*,
 MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, ULIDAT,
 USPAT2, USPATFULL
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**
 (**Enter CHEMLIST File for up-to-date regulatory information)



****PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT****

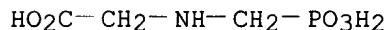
4536 REFERENCES IN FILE CA (1907 TO DATE)
 271 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 4545 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L13 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS on STN
 RN 38641-94-0 REGISTRY
 CN Glycine, N-(phosphonomethyl)-, compd. with 2-propanamine (1:1) (9CI) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN 2-Propanamine, compd. with N-(phosphonomethyl)glycine (1:1) (9CI)
 OTHER NAMES:
 CN Azural AT
 CN Buggy
 CN Fosulen
 CN Glyphosate isopropylamine
 CN Glyphosate isopropylamine salt
 CN Glyphosate mono(isopropylamine) salt
 CN MON 0139
 CN MON 39
 CN N-(Phosphonomethyl)glycine isopropylamine salt
 CN N-(Phosphonomethyl)glycine isopropylammonium salt
 CN N-(Phosphonomethyl)glycine monoisopropylamine salt
 CN Nitosorg
 CN Rodeo
 CN Ron-do
 CN **Roundup**
 CN Roundup Custom
 CN Roundup Ultra
 CN Utal
 CN Utal (herbicide)
 CN Vision
 CN Vision (herbicide)
 DR 96638-41-4, 96639-11-1, 106805-61-2, 39226-77-2, 258263-91-1
 MF C3 H9 N . C3 H8 N O5 P
 CI COM
 LC STN Files: AGRICOLA, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMLIST, CIN, CSCHEM, CSNB, EMBASE, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MRCK*, MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS*, TOXCENTER, ULIDAT, USPAT2, USPATFULL
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**
 (**Enter CHEMLIST File for up-to-date regulatory information)

CM 1

CRN 1071-83-6

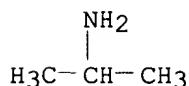
CMF C3 H8 N O5 P



CM 2

CRN 75-31-0

CMF C3 H9 N



810 REFERENCES IN FILE CA (1907 TO DATE)
 40 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 812 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS on STN
 RN 112-05-0 REGISTRY
 CN Nonanoic acid (7CI, 8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN 1-Octanecarboxylic acid
 CN Grantrico
 CN n-Nonanoic acid
 CN n-Nonoic acid
 CN n-Nonylic acid
 CN n-Pelargonic acid
 CN Nonoic acid
 CN Nonylic acid
 CN NSC 62787
 CN NSC 65450
 CN NSC 65455
 CN Pelargic acid
 CN **Pelargonic acid**
 CN Pergonic acid
 FS 3D CONCORD
 MF C9 H18 O2
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS,
 BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CHEMCATS,
 CHEMINFORMRX, CHEMLIST, CIN, CSCHM, CSNB, DDFU, DETHERM*, DIOGENES,
 DIPPR*, DRUGU, EMBASE, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB,
 IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PROMT, RTECS*,
 SPECINFO, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)

HO₂C—(CH₂)₇—Me

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

3663 REFERENCES IN FILE CA (1907 TO DATE)
 212 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 3669 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L2 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS on STN

RN 334-48-5 REGISTRY

CN Decanoic acid (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN 1-Nonanecarboxylic acid

CN **Capric acid**

CN Caprinic acid

CN Caprynic acid

CN Decoic acid

CN Decylic acid

CN Emery 659

CN Lunac 10-95

CN Lunac 10-98

CN n-Capric acid

CN n-Decanoic acid

CN n-Decoic acid

CN n-Decylic acid

CN NAA 102

CN NSC 5025

CN Prifac 2906

CN Prifac 296

FS 3D CONCORD

MF C10 H20 O2

CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

HO₂C—(CH₂)₈—Me

RN 143-07-7 REGISTRY
 CN Dodecanoic acid (9CI) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN **Lauric acid (8CI)**
 OTHER NAMES:
 CN 1-Undecanecarboxylic acid
 CN ABL
 CN Aliphatic No. 4
 CN Dodecylic acid
 CN Edenor C 1298-100
 CN Emery 651
 CN Hystrene 9512
 CN Kortacid 1299
 CN Laurostearic acid
 CN Lunac L 70
 CN Lunac L 98
 CN n-Dodecanoic acid
 CN NAA 122
 CN NAA 312
 CN Neo-Fat 12
 CN Neo-Fat 12-43
 CN NSC 5026
 CN Philacid 1200
 CN Prifac 2920
 CN Univol U 314
 CN Vulvic acid
 FS 3D CONCORD
 DR 7632-48-6, 8000-62-2, 8045-27-0, 203714-07-2
 MF C12 H24 O2
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS,
 BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN,
 CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHM, CSNB, DDFU, DETHERM*,
 DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2,
 GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*,
 MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO,
 SYNTHLINE, TOXCENTER, TULSA, USPAT2, USPATFULL, VETU
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)

HO₂C-(CH₂)₁₀-Me

L20 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS on STN
 RN 124-07-2 REGISTRY
 CN Octanoic acid (8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN 1-Heptanecarboxylic acid
 CN **Caprylic acid**
 CN Emery 657
 CN Kortacid 0899
 CN Lunac 8-95
 CN Lunac 8-98
 CN n-Caprylic acid
 CN n-Octanoic acid
 CN n-Octoic acid
 CN n-Octylic acid
 CN NAA 82
 CN Neo-Fat 8
 CN Neo-Fat 8S
 CN NSC 5024
 CN Octylic acid
 CN Prifac 2901
 FS 3D CONCORD
 MF C8 H16 O2
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS,
 BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN,
 CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSChem, CSNB, DDFU, DETHERM*,
 DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT,
 ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA,
 MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PHAR, PIRA,
 PROMT, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER, TULSA, ULIDAT, USAN,
 USPAT2, USPATFULL, VETU, VTB
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**, WHO
 (**Enter CHEMLIST File for up-to-date regulatory information)

HO₂C—(CH₂)₆—Me